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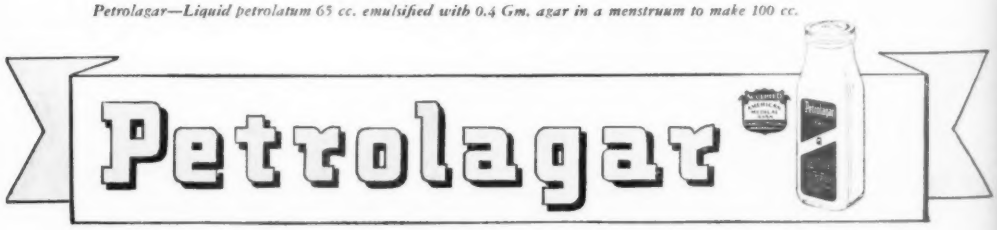

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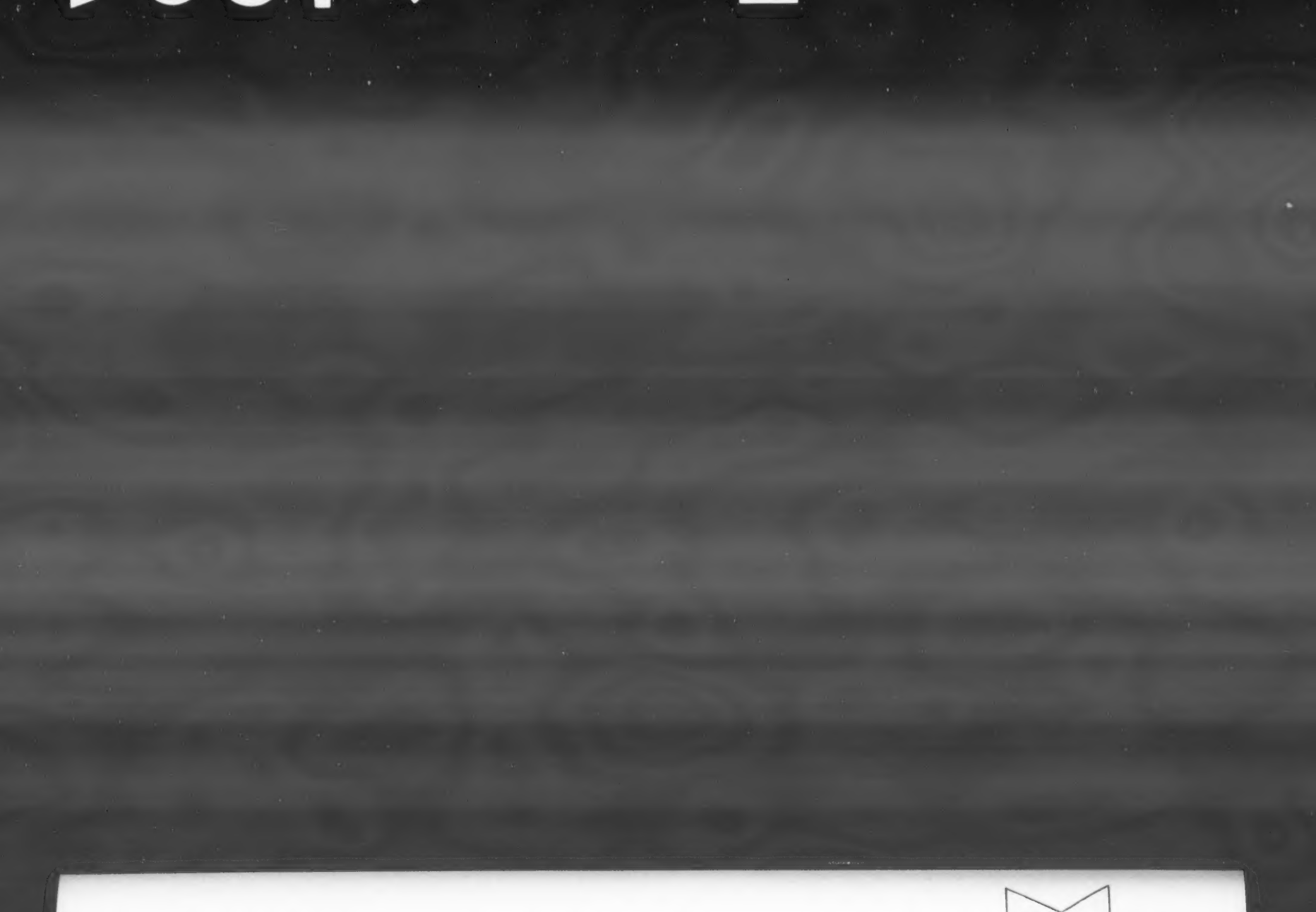

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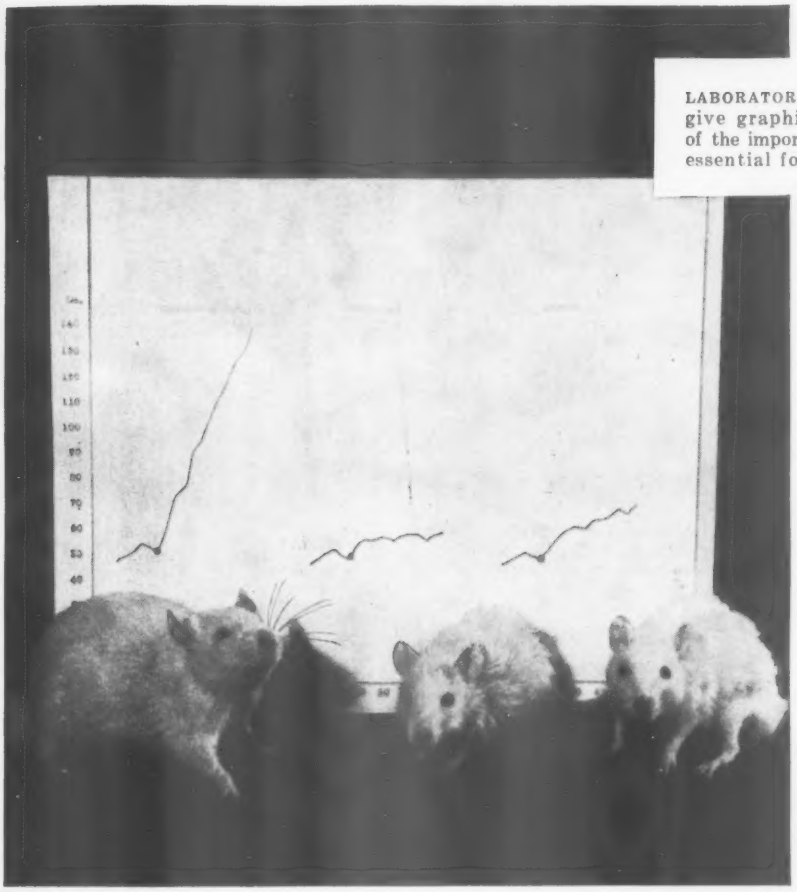

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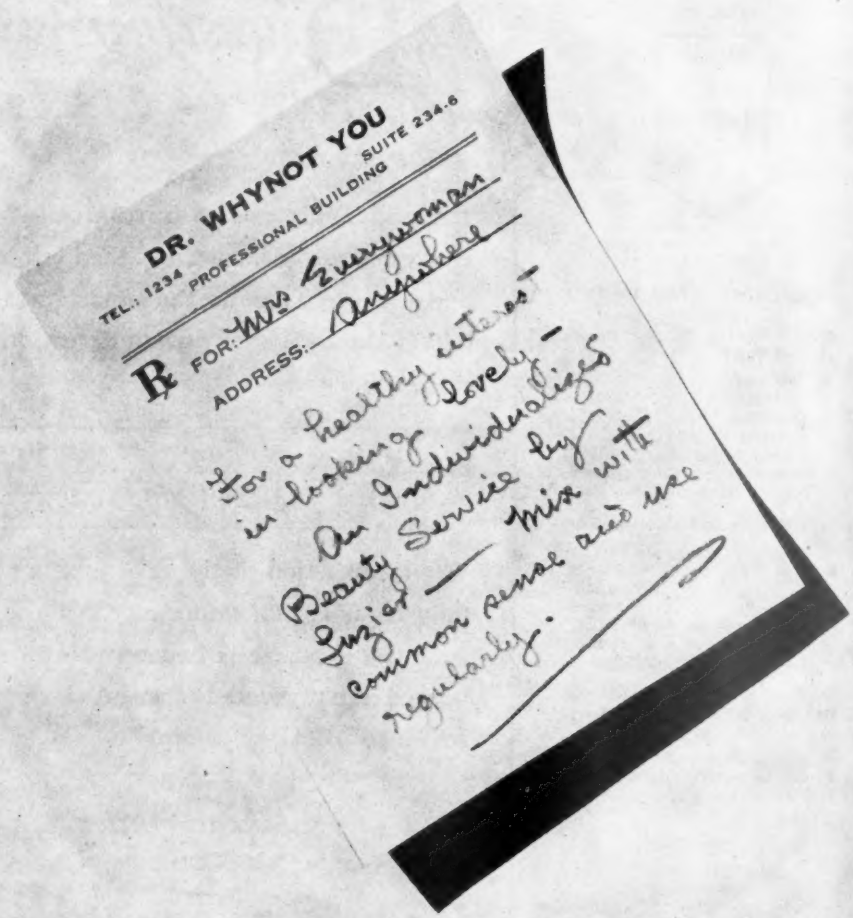

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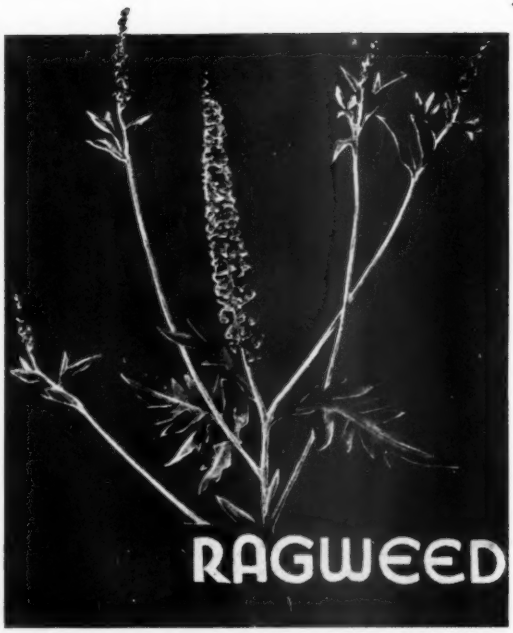

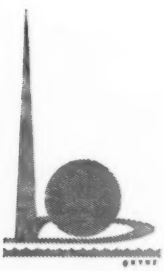

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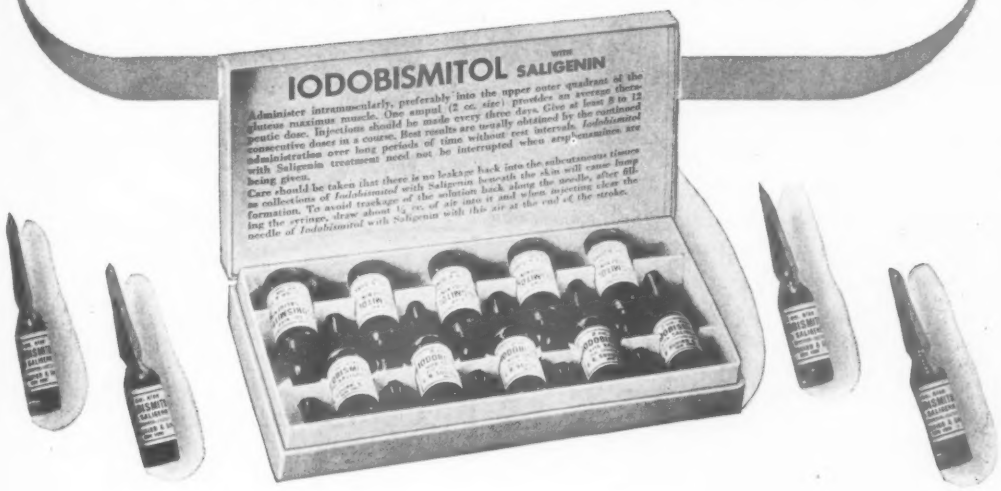

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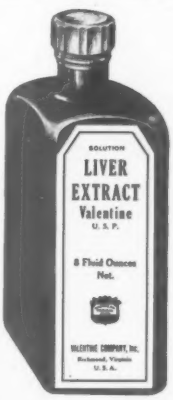

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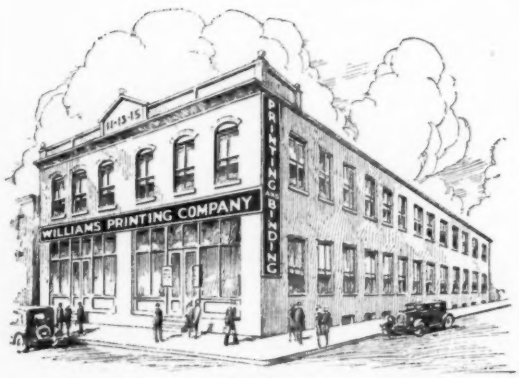

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EARLY DIAGNOSIS IN PNEUMONIA.*

WALTER P. ADAMS, M.D.,
Norfolk, Virginia.

Pneumonia has a higher mortality rate than any other one of the infectious diseases, and this has been increasing year by year. Its mortality rate is exceeded only by two other conditions, heart diseases and accidents. Surgeon General Parran considers his plan for pneumonia control next in importance to his campaign against syphilis. This widespread interest among public health officials has materially aided state-wide programs for the control of pneumonia through education of the laity and cooperation with the practicing physicians. Since specific anti-serum treatment of pneumonia has been receiving widespread recognition, public health authorities have come to realize that specific type diagnosis and treatment of pneumonia is a valuable weapon with which to combat this increasing number of deaths. The change in the method of handling of some pneumonias from merely symptomatic care and expectant treatment, to the use of specific sera in proper amounts, is necessarily related to early clinical diagnosis of the disease, and the early identification of a specific pneumococcus in as many cases as possible.

Pneumonia has long been a general term including a wide variety of acute pulmonary infections, and the descriptive adjectives modifying it have been many and varied, including such as senile, abortive, and contusion pneumonia. Because specific serum therapy has forced the necessity of diagnosing pneumonia on an etiologic basis, it is no longer sufficient to regard cases as simply lobar pneumonia or bronchopneumonia. These anatomical terms must be qualified by naming the specific etiologic agent whenever and as soon as possible.

A simple solution of the confusion in classification of pneumonias was made by Cole in 1928, in designating as typical all those pneumonias conforming clinically with lobar or pneumococcic pneumonia. All others were then grouped as atypical, with modification according to the etiologic agent, such as atypical streptococcic pneumonia, meaning diffuse or bronchopneumonia of streptococcic origin. This emphasizes the relative unimportance of purely anatomic diagnosis when one first sees and hears the signs of pneumonia. Too much effort should not be wasted in differentiating between lobar pneumonia and bronchopneumonia. It is of no immediate importance whether the disease will assume the clinical lobar form or not, except that the prognosis is better if the lesion is localized. It is, however, of great immediate importance to know whether the pneumonia is caused, for example, by any certain type of pneumococcus or hemolytic streptococcus, for in both these instances totally different specific therapy is necessary, regardless of the anatomical or clinical form the pulmonary infection assumes.

But early clinical diagnosis remains the first important phase in the care of pneumonia, after which laboratory studies and therapy can be instituted. Early clinical diagnosis is also important apart from the etiological diagnosis, in that pneumonia is a contagious and infectious disease in which no time should be lost in applying measures to prevent the spread of infection. Early diagnosis implies alert interpretation of history, physical signs, and laboratory findings. The most valuable early diagnostic sign of pneumonia is the suspicion that it might be present. History of an individual having a chill, rise in temperature, pain in chest, or cough with rusty sputum usually causes even a layman to suspect pneumonia.

About 70 per cent of so-called primary pneumonias are actually secondary to a common cold. Any upper respiratory infection with its fever, prostration,

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Greenville, N. C., December 6-8, 1938.

cough, and pleuritic pain suggests pneumonia if instead of prompt recovery there is a more severe cough, increasing sputum, or respiratory rate change. Frequently in these cases it is difficult to say whether the pneumonia is a complication of the cold, or the cold is a gradual onset of pneumonia. Early recognition of changes in persisting colds will often reveal pneumonia and the necessity of sputum studies.

The great majority of all pneumonias allow diagnosis before the usual physical signs of consolidation appear. There are always one or more characteristic physical findings present in the earlier stage of engorgement. In this stage of pneumonia the appearance of the patient bears much diagnostic weight. The flushed face, herpes about the lips, the inspiratory dilatation of the nasal alae, and the increased respiratory rate with characteristic expiratory grunt, all contribute to the characteristic appearance of the illness.

A summary of the most important changes which are frequently in evidence in the earlier stage of pneumonia include:—

1. Characteristic respiration, it being rapid, restrained, and shallow. Inspiration is checked short, while the sudden release of expiration causes a shallow expiratory grunt. The pulse-respiration ratio is disturbed to two to one or even one and one-half to one. The value of this latter sign is too often underestimated.

2. Cyanosis appearing at the lips, ear lobes, and finger tips and coincident with rapid breathing.

3. Sudden unilateral chest pain, frequently with limitation of respiratory movement on the side involved. Important is the tendency to lie on the involved side, and the absolute lack of orthopnea.

4. Diminished or suppressed breath sounds over certain areas, and the presence of fine crepitant rales at the end of inspiration. These rales are due to the sticky alveolar walls being pulled apart at the end of inspiration. In early stages a striking diagnostic feature is the rapid change in the ausculatory findings, noticeable even in a few hours.

5. Dry paroxysmal cough at first, and later with rusty sputum, showing blood cells, leucocytes and one of the usual causative organisms.

6. Sudden chill with abrupt temperature rise. The lack of chill should not remove the suspicion of pneumonia, whereas more than one chill is suggestive of some other form of infection in the lung or elsewhere. It should also be borne in mind that pneumonia in elderly and debilitated persons may be almost afebrile.

7. A marked degree of leucocytosis.

These signs are the most frequent to be found in early pneumonia. There are others not mentioned here. An X-ray corroboration of early diagnosis by one or more of these findings is to my mind superfluous. Valuable time can be wasted which should be spent in further diagnosis along bacteriologic lines. However, if the physical findings are confusing, roentgenology serves the dual purpose of establishing the existence and location of pneumonic infiltration, and also of excluding any other confusing intrathoracic pathology. Portable instruments are now very efficient and should be used whenever there is doubt.

But the early clinical diagnosis of pneumonia does not rest with merely establishing the existence of the disease. Pneumonia of any kind today must be regarded as an emergency disease which brooks no delay if favorable results are to be obtained from either specific immune serum therapy or chemotherapy. To this end the completion of clinical diagnosis is only a signal for immediate work on the bacteriologic diagnosis. The earlier the causative organism can be identified and specific serum given, the greater is the effectiveness which can be expected from serum or chemotherapy. Mortality is directly in relation to the speed with which one gets proper serum to the patient, but it is not correct to assume that serum does good only in the first three days of the disease. Thus we see the complete diagnosis of pneumonia depending on bacteriologic information, as well as early clinical findings, both of which must be obtained as quickly as possible and with the greatest accuracy.

Since the pneumococcus causes by far the majority of all pneumonias, the most important procedure in the bacteriologic diagnosis of the disease is typing of the pneumococci after their demonstration. Material for typing may be obtained from lung puncture, blood culture, urine, or sputum.

While lung puncture is the most reliable method of all, it should be held in reserve for differentiation of organisms if there are multiple types or multiple organisms reported in the sputum. A series of 2,500 lung punctures done at the Harlem Hospital recently, to determine the reliability of typed sputum, revealed that in 7 per cent of the cases, the type

obtained from the sputum may not be the type actually causing the disease.

Blood culture is not thought of primarily as a typing method, yet it may be the only way to obtain type information. But by the time the blood culture is positive, we are not working in terms of early diagnosis. The blood culture is a reasonably good prognostic index and it is also used as a criterion for the intensity of treatment.

Urine typing is not used in diagnosis. If there is sufficient antibody in the urine, the patient is very sick and typing information is available from the sputum or the blood.

The sputum is the simplest of the typing materials to obtain. Perseverance will usually win in the cases of difficult collection. One can turn the patient on his side with the involved side uppermost, have him stay there a short time, and secretion will usually come down into the bronchus and be coughed up. There may not be much sputum but a tiny fleck is valuable. Some use the laryngoscope routinely to obtain sputum. In children it is frequently possible to get sputum from a gloved finger inserted well back into the pharynx. Occasionally the stomach tube produces a suitable sample for typing, for sputum is constantly being swallowed. Saliva as a rule contains too few pneumococci for direct typing, so that about four hours' incubation in broth or in the peritoneum of a mouse is necessary to increase their number. A thick, glary, tenacious, slightly blood tinged sputum is best for a direct typing reaction. If sputum is unobtainable, coughing should be induced to obtain whatever sample possible, and it should be speeded to the nearest typing laboratory.

Direct typing by the Neufeld reaction has been adopted almost universally as being the quickest, simplest, and fairly reliable. Complete study requires the additional inoculation of a mouse. Not only is mouse peritoneal exudate used in recovering the organism, but precise identification of the organism responsible for its septicemia must also be undertaken by culturing the mouse heart's blood or brain. Further, although the organism recovered from the sputum is responsible for the infection in more than nine out of ten cases when a pneumonia is present, the pneumococcus recovered may be merely carried by the patient, and some different organism be producing the pneumonia.

Granted the necessity for laboratory as well as clinical diagnosis, what bacteriologic procedure should we as practicing physicians use to complete the diagnosis and hasten the matter of treatment? My answer is to let a competent laboratory use their procedure after the doctor has hastened the sputum there. A practicing physician, urban or rural, should not be asked to assume the role of an experienced technician. The people who work in laboratories expect an error of five to ten per cent in working with typing reactions. They check themselves by repeating the test and by further procedures. I believe it is wrong for one not doing laboratory work to certify to the exactness of a type of pneumococcus, and have specific serum for that type administered to the patient. Let me repeat, the ideal thing to do with a sputum specimen is to send it quickly to a properly equipped laboratory.

North Carolina has sixty-eight expert pneumonia-typing technicians in fifty towns and cities throughout the State, each of whom were given an intensive course of training in the typing of pneumococci at Duke University in January, 1938. Many states have free typing stations, some with twenty-four hour service. Some states have arranged for free distribution of pneumonia serum in line with the traditional distribution of typhoid and diphtheria preventives and antiluetic drugs.

So it is seen that the early diagnosis of pneumonia can no longer be thought of as being only a clinical problem. The laboratory must be used in order to classify the pneumonia properly. When the physician determines that typing studies should be carried out, and only the physician should decide this, it is just the beginning of his work. All this uses an extra amount of his time. He often spends many hours at obstetrical bedsides. It may be necessary to spend six or eight hours with a pneumonia case in obtaining full diagnostic evidence and then proper material for treatment. But with serum treatment instituted properly, the patient's bed days are considerably shortened, and the chance for complications or death considerably lessened. For these reasons there is now quite an additional responsibility of the physician for early diagnosis in pneumonia.

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EDITOR'S NOTE.—Since this paper was prepared, a number of pneumonia typing stations have been established throughout Virginia, as will be noted in the Department of Public Health Statistics, in this issue of the MONTHLY.

DIAGNOSIS AND TREATMENT OF LOBAR PNEUMONIA.*

DOUGLAS G. CHAPMAN, M.D.,
Richmond, Virginia.

Recent progress in the diagnosis and treatment of lobar pneumonia has saved many lives. In the United States from 1930 to 1935 there was an average of 96,500 deaths a year from pneumonia, or seventy-seven per 100,000 people, with pneumonia ranking as the fifth cause of death. This disease is widespread but shows geographical distribution, being most prevalent in the northeast and northwest and least in the southwest. Among the cities of over 100,000 population, Pittsburgh has the highest death rate from this disease, 217 per 100,000, and Long Beach, California, the lowest, 52 per 100,000. For the past three years Pittsburgh's death rate from pneumonia has been 161, 193, and 167 respectively per 100,000 population. The occurrence of this disease varies inversely with the family income.

The predisposing factors to pneumococcic pneumonia are numerous, and probably the most important is direct exposure of a susceptible person to a carrier or to a person who has pneumonia. Types I and II pneumococci are rarely found in the throat of a normal person, but these and other virulent types are frequently found in the throat of one who has been in contact with an infected person. External factors, such as exposure to cold with chilling of the body, inhalation of poisonous gases including anesthetics, alcoholic intoxication, and trauma, predispose the individual to acute pneumonia. Other predisposing factors are those favoring development of edema, since the edematous fluid is a favorable culture media and allows bacteria to multiply at a rapid rate. This fluid also protects the pneumococcus from the phagocytes, is practically free of antibodies, and contains a large amount of the carbohydrate capsular substance which likewise is resistant to antibody activity.

The mode of infection has long been a disputed question, but it is generally believed that the infection enters the upper respiratory tract and there the pneumococci are mixed with mucous secretions and are later aspirated into the lungs. The mucoid secretions protect the pneumococci from the phagocytes and permit them to multiply in a favorable medium. When this inoculum is present and irritation begins, there occurs in one hour slight dilatation of the capillaries, beginning infiltration of polymorphonuclear leukocytes, slight exudation of edema fluid in the alveolar spaces, and irritation of the alveolar epithelium. During the first eight hours there is a rapid accumulation of exudate which overflows into the surrounding alveoli and bronchioles, forming an excellent culture medium for transplanting the pneumococci. Within this infected area there is increasing engorgement of the capillaries with blood, the air spaces are filled with edema fluid, and the polymorphonuclears and pneumococci increase. The process so far is a peribronchial pneumonia. These small areas of infiltration fuse during the first eight to fourteen hours and take on the gross and microscopic picture of lobar pneumonia. The pathological picture from this stage on is well known. The above picture takes place in susceptible subjects. Frequently it is impossible to produce pneumonia by direct spraying of the nasal and oral mucous membranes. Intravenous, subcutaneous or intraperitoneal injections will not produce pneumonia in highly resistant animals, such as the rat and the dog; they recover without localizing lesions and the non-resistant ones succumb to septicemia.

Bacteriologic Diagnosis: The pneumococcus causes about 90 per cent of primary pneumonia in adults and about 50 per cent of the pneumonia in children. One child in eight to ten who has pneumonia has it secondary to measles and whooping cough. The pneumococcus is differentiated from the streptococcus by the presence of a capsule; it is bile soluble and has a characteristic colony growth. Thirty-six years ago Neufeld showed there were many types. Dochez and Avery reported three definite types and a fourth group with many types. Cooper and her associates define twenty-nine different types formerly classed under Group IV.

The classification depends on the carbohydrate substance contained in the capsule of the organism. The pneumococcus contains two substances, the carbohydrate of the capsule and the protein fraction of the body organism. Recent investigation has proved

From the Medical Department of St. Elizabeth's Hospital, Richmond, Va.

*Presented at the Staff Meeting of the Medical College of Virginia, November 10, 1938.

that Type XXVI cross-agglutinates with Type VI and Type XXX cross-agglutinates with Type XV.

Since 1902 the Neufeld reaction has formed the basis of much research. Neufeld demonstrated that when an anti-serum is mixed with a pneumococcus a swelling and a change in the appearance of the pneumococcus result. This was termed the Neufeld or Quelling reaction. Armstrong, Snead and Logan in 1932 in England, and Sabin in 1933 in America worked out the following Neufeld modification: a drop of sputum, a drop of dye and a drop of different anti-serums are mixed and examined in five or ten minutes, and the swelling of one or more pneumococci is sufficient to determine the type. This is done in a short time and in skilled hands is 95 per cent accurate. By this method all patients with a pneumococcic pneumonia can be given a definite type. The American Medical Association sent questionnaires to 4,535 hospitals, and of the 2,595 replies received 1,850 hospitals reported the typing of pneumonia patients for serum treatment.

Virus infection frequently prepares the soil for secondary invaders, such as streptococcus hemolyticus and H. influenzae which often produces atypical types of pneumonia. These cases occur sporadically and epidemically. The sputum cultures show an abundance of streptococcus hemolyticus and H. influenzae, but very few of these organisms are found in the sputum from pneumonia patients where the pneumococcus predominates. A mixed infection greatly influences the clinical course, alters the treatment, and has a definite bearing on the prognosis. In such cases the mortality rate is much higher. It is as important, therefore, to culture the sputum for predominant organisms as it is to culture the blood for bacteremia.

Early diagnosis in pneumococcic pneumonia is most important. If we wait until the classical physical signs of pneumonia develop, much valuable time will be lost. Dr. Rufus Cole who has done more than anyone else in advancing the serum treatment of pneumonia states: "If a person has a cold and then a chill, with fever over 102, cough, pain in chest, rapid respiration, and expectoration of bloody sputum, pneumonia is the diagnosis in practically every case. Typing should be done at once and specific serum given."

Most of the deaths from pneumococcic pneumonia can be prevented by a specific treatment, namely, antipneumococcic serum. In most diseases the best remedy becomes the most popular, and all physicians quickly learn to use that one, but this has not been true in the treatment of pneumonia. Estimates show that only 21 per cent of Type I cases are serum-treated. I believe the reason for this small percentage is the fact that those physicians who have not used the specific serum have not observed the dramatic results of the anti-pneumococcic serum. So specific is this serum for certain types of pneumonia that the clinicians who have had the greatest amount of experience believe if the patient does not show definite signs of improvement after sufficient serum has been given and twenty-four to forty-eight hours have elapsed, there is a complication, such as empyema, or there has been a mistake in the typing. There are several objections to the use of this form of treatment: (1) the technical difficulties involved in accurate typing, but this has been greatly simplified and typing stations are usually reasonably near; (2) the expense of the serum, but this is being overcome in many states and the serum is cheaper than a long illness and probably a funeral; (3) the uncertainty about its anaphylactic reaction and its efficacy. Its safety is shown in the records of the Massachusetts Department of Public Health reporting 1,313 cases treated with serum and only four deaths attributed to the serum. The effectiveness of the serum is well known and will be discussed later.

New York, Massachusetts and Michigan have had pneumonia control programs for several years and these have done much to increase our knowledge and to lower the death rate of pneumonia. The mortality statistics have varied greatly throughout the country from year to year, and likewise there has been a marked variation in the same locality at the time of different outbreaks. This is easily accounted for, now that we are more familiar with the different types. We cannot compare pneumonia mortality statistics as a group, but must compare them only as to types.

The most common type in most communities is Type I; the next in order are Types III, II, VIII, V, and VII. A statistical study of 6,545 cases occurring in New York, Boston, Cincinnati and San Francisco showed that 65 per cent of the cases occurred in eight of the types where we have a specific serum. The types of pneumonia higher than I, II, and III form an important group of cases. In this large series over 50 per cent were of the higher types. Thirty

per cent of these were in Types IV, V, VII, XVIII and XIX.

Specific serums for Types I, II, IV, V, VII and VIII have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Serum is being used experimentally for Types III, VI, IX, and XVIII, and in the Rockefeller Institute serum is being used on all types. It will doubtless soon be available for a much larger number of cases. MacLeod treated fourteen cases of Type III pneumonia with serum, with four deaths. Plummer treated nine cases of Type III with serum with three deaths. Type III serum has a good deal of shock-reacting material and it is hoped that this can soon be greatly lessened. The Pneumonia Advisory Committee has recommended "standardization of therapeutic serum", since they believe "the application of specific serum therapy to Types V, VII, and VIII cases will be hindered and handicapped as long as the potency of those serums cannot be uniformly measured and some reliable recommendation made as to the dose".

Until recently most of the serum used in the treatment of pneumonia was derived from the horse. During the past few years many cases have been treated with rabbit serum. This should be more effective, since the protein molecules are smaller than those from the horse serum and the protein molecules represent the antibodies. The rabbit can be immunized quickly, whereas horse immunization takes about a year and is much more expensive. The pleural and peritoneal fluids are more actively immunized by the smaller molecules. The objection to the rabbit serum is that following its use chills are more frequent and more severe. It is believed by many that small doses of acetyl-salicylic acid given just before the serum is administered will reduce the frequency and severity of the chills.

The amount of serum to be given varies with different observers. Cole for a number of years has advocated larger doses. He states that the pneumococci are virulent only because they possess capsules which in some mysterious way protect the virulent protein portion of the organisms from the leukocytes. A vigorous pneumococcus without a capsule can be grown and when injected into an animal will cause no infection, and if these organisms are placed in a mixture with leukocytes they are readily destroyed. Capsular substance is set free in the blood and body fluids in large amounts in very ill patients. When immune serum is added to this capsular substance, the antibodies of the serum become fixed by it and the encapsulated pneumococci will be entirely unaffected until after the capsular substance has been neutralized; then the immune serum will activate phagocytosis. Therefore, it is important to give the serum early and in large amounts before the capsular substance has had time to form.

Bacteremia requires large doses of serum. Bullowa's observations show that the blood stream is invaded by Types I and II on the fourth day or later, and in some cases it may be invaded quite early. He reports Type I invasion in one-fourth of the cases and Type II more frequently.

Dose of the Serum: There is a trend toward shortening the intervals between doses and giving much larger doses. Most physicians are treating with two doses those patients who are not sensitive to the intradermal or conjunctival tests. Type I cases are given an initial dose of 20,000 units and an hour later 60,000 to 80,000 units. Type II cases are given 20,000 units and then 60,000 units at hourly intervals for three hours. If a positive blood culture is present the dose should be doubled.

Effectiveness of the Serum: It is thought by many that serum treatment is ineffectual after the third or fourth day. This has not been the experience of those using the serum late in the disease. Cole reports 500 cases of Type I treated with specific serum within the first three days, with a mortality rate of 4.8 per cent; in those treated within the first four days the mortality rate was 8 per cent; five days, 8.6 per cent, and within the first six days 19.5 per cent.

Blankenhorn reports 1,000 cases, in which 230 were treated with serum with a mortality rate of 8.2 per cent. The expected mortality rate for the same types was 34 per cent; therefore, there was a reduction of 76 per cent in the mortality rate. Benjamin reports 50 consecutive cases of Type I treated within ninety-six hours without a death. In control groups reported from Ohio, Michigan, Connecticut, Pennsylvania and from England, Scotland and Denmark there was a reduction of 50 to 60 per cent in mortality rate of serum-treated cases in Type I; 40 to 50 per cent in Type II; and about 45 per cent in Types V, VII and VIII. Serum is of limited value in pneumococcic meningitis except with sulfanilamide and of no value in pneumococcic endocarditis.

In addition to the administration of serum in the

treatment of pneumonia, there are other factors which are of the utmost importance. Pneumonia patients die from dehydration and peripheral circulatory failure. It is, therefore, very important that every effort be made to prevent these conditions. Dehydration and hemoconcentration are easily controlled by sufficient fluids and sodium chloride. The circulatory failure is caused by the toxemia which produces dilatation of the capillaries; this slows the circulation and renders the capillaries more permeable, resulting in loss of fluid into the tissue space and increased cyanosis.

The patient's symptoms are a very good guide as to the toxemia present and the oxygen concentration of the blood. This is well illustrated by the symptoms and signs of mountain sickness. Mountain sickness may develop at an altitude of 10,000 feet when arterial blood is 87 per cent saturated; breathing is deeper and more rapid, the pulse is faster, there are dizziness, weakness, nausea and moderate restlessness. At an altitude of 16,000 feet the nervous symptoms are increased, there are headache, loss of appetite, restlessness, lethargy, impaired judgment, loss of memory, slowed reaction time, nausea and vomiting. Oxygen want is recognized by irritability, apprehension, loss of finer motor control, diminution of vision, yawning, sighing, irregular breathing, delirium and coma. Extra oxygen concentration is demanded in pneumonia because there is improper ventilation and breathing is shallow at first. Small amounts of blood circulate through a consolidated and airless lung, and the edema fluid prevents the diffusion of oxygen from the alveoli into the pulmonary capillaries. Effective oxygen administration should minimize the oxygen want, quiet the patient, control the nervous and mental symptoms, simplify nursing, and in many cases prevent peripheral circulatory collapse.

Powell, of Temple, Texas, has used roentgen radiation in over 100 cases with a mortality rate of 2.5 per cent in lobar pneumonia and 14 per cent in all types of pneumonia. Sulfanilamide has been used extensively, but there has not been sufficient control data to justify reporting the results, though the records of its use are very favorable. This drug should be used where specific serum is not available, and especially in conjunction with the serum where there is a positive blood culture, also in pneumococcic meningitis and peritonitis. Hydroxyethylapocupreine dihydrochloride has been used at the Mellon Institute, sponsored especially by Maclachlan. It is given there in fifteen grain doses every three hours day and night for three to five days, and in certain cases a 2 per cent solution of monohydrochloride is administered intravenously every three hours. Of 149 chemically treated patients, two developed pneumococcic empyema. Considering all types of pneumonia, Maclachlan's results in the past year are the same as in those cases given specific pneumococcic serum. Diathermy has also been used by some with good results.

Cecil and others have stated that when pneumonia patients are treated early with specific serum, the following phenomena are usually observed:

(1) The disease may be completely aborted, and all of the classical signs disappear within twelve to twenty-four hours after the administration of serum:

(2) There is usually improvement in the patient's general condition as the result of the disappearance of toxemia;

(3) The spread of infection from lobe to lobe and in the infected lobe is checked;

(4) Bacteremia is prevented, and if it does occur it is quickly checked and the suppurating sequelae are reduced;

(5) The leukocytes soon return to normal;

(6) Homologous agglutinins, precipitins and protective bodies promptly make their appearance in the circulating blood;

(7) Skin tests become positive to the homologous polysaccharides.

Conclusion: The treatment of pneumonia by typing and using specific serums is extremely important. Other measures, such as the use of oxygen, the prevention of dehydration, the administration of sulfanilamide, and the employment of diathermy are also valuable, and some or all of them may be utilized in conjunction with the serum therapy.

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DISCUSSION

DR. WYNDHAM B. BLANTON, Richmond: Dr. Chapman has given us a comprehensive discussion of a disease of vast economic importance. With what he has said we are all in agreement. It might be pointed out, however, that the present approach to pneumonia is through an etiological rather than an anatomical classification of the disease, and that "pneumococcic pneumonia" is probably a more useful term than "lobar pneumonia".

For the last two or three years we have been interested in a study of pneumococcic pneumonia in the wards of the Medical College of Virginia where the records of 100 typed cases are now available for study. We have been fortunate in holding a grant by which we have been able to administer antipneumococcic serum to all properly typed cases of the disease. Our experience has confirmed what Dr. Chapman has so admirably said in regard to the efficacy of serum. We have been able to reduce our mortality about 50 per cent using both horse and rabbit serum. We have given up the use of polyvalent serum because of severe thermic reactions which frequently accompany its use and because monovalent serum is a more rational therapeutic agent. We have been particularly interested in type incidence of the pneumococcus in Virginia and have assembled the results of more than 1,000 typings. All of our work shows the great predominance of pneumococcus Type I and on the whole parallels reports from other parts of the country.

As has been pointed out by the Professor of Medicine in the Medical College of Virginia, the tendency is to rely too implicitly upon serum treatment in a given case of pneumonia. It should always be borne in mind that the symptomatic treatment of the pneumonias is still of vast importance and attention to bowels, food and water intake, restlessness and cough, still require vigilance and often tax clinical acumen.

TYPE III PNEUMOCOCCIC PNEUMONIA WITH REPORT OF A CASE SUCCESSFULLY TREATED WITH SPECIFIC SERUM.*

J. PAUL KENT, M.D.,
Altavista, Virginia.

The classification of pneumococci into serologically specific types has made it possible to treat the pneumonias with specific serum. At first this was studied with reference to lobar pneumonia, but it has been found that different types vary in the uniformity with which they produce lobar pneumonia, atypical pneumonia or broncho-pneumonia or focal infection without pneumonia.

Most of the writers state that Types I and II are usually associated with primary lobar pneumonia Types III and VIII, which at first were confused and have been found to manifest themselves in several different forms of pathology.

The Type III pneumococcus has a large capsule, tends to grow in chains, and to produce large mucoid colonies on the surface of a solid medium. The Type III organism is found in meningitis, peritonitis, phlebitis, croupous pneumonia, middle ear infections, and in other conditions. It is the most common type of pneumococcus found in the normal nasopharynx. Most writers rank it third of the pneumococci in producing lobar pneumonia, while others claim that it causes as high as 20 per cent of the pneumococcic pneumonias. It occurs most frequently in older people.

Type III pneumonia is characterized by a sudden rapid onset with chill, pain in chest, and expectoration of rusty or blood-streaked sputum. It occasionally exists in a mild form that subsides in a day or two without any treatment, but it usually runs nine

*Read before a meeting of the Lynchburg Academy of Medicine, January 9, 1939.

or ten days, terminating by lysis. It very frequently starts in one lobe and spreads through an entire lung or develops in the opposite side, behaving in this manner much more frequently than the other types. The patients are very toxic and appear acutely ill. It is common for them to terminate fatally after a very short illness. The mortality varies in different reports from the various clinics, ranging from 40 to 80 per cent depending upon the location, ages of patients, and whether bacteriemia is present or not.

The specific pneumococcic serums are most commonly made by the use of horse serum. In some of the types the sera are very effective, but Type III made from the horse was found to be non-effective. Recently, it has been found that Type III made with rabbit serum is much more effective, but, whereas 40,000 to 80,000 units of serum in Types I and II have been producing remarkable results, it requires from 100,000 to 300,000 units of Type III rabbit serum to control Type III pneumonia.

Heintzelman, Hadley, and Mellon of Pittsburgh, Pennsylvania, in 1937 reported in *The American Journal of Medical Sciences* a series of Type III pneumonia treated with sulfanilamide. They reported a mortality of 74 per cent in cases treated with usual symptomatic treatment, and of only 22 per cent of those treated with sulfanilamide. However, if one analyzes their case histories, it can be seen that they have included several practically moribund patients on admission to the hospital and also several bacteriemic patients in their cases untreated with sulfanilamide. The treated cases were mostly admitted to the hospital early in the disease and in very good general condition on institution of the treatment.

Telling and Oliver of London, England, reported in June 18, 1938, issue of *The Lancet* a case of massive pneumonia, Type III, successfully treated with sulfanilamide.

Cecil and Lawrence reported two cases of Type III pneumococcic pneumonia treated with rabbit serum with a mortality of 50 per cent. They state that Type III, due to its prevalence, high mortality, and failure to respond to serum in the past has made it a serious problem.

Although I realize that one case is of little value, the principal purpose of this discussion is to report a case of Type III pneumococcic pneumonia successfully treated with Type III antipneumococcic (rabbit) serum.

CASE REPORT

Case: T. W. P., Jr., white, male, age seventeen, first visited November 20, 1938.

H. P. I.: The day before the first visit he had complained of pain in right shoulder. On morning of first visit he delivered eighty-five morning papers and came home complaining of headache, sweats, and feeling cold. Two weeks previously he had had a cold and some sinus trouble.

Examination: T.100; P.90; R.24.

Both frontal sinuses and right antrum illuminated poorly, turbinates swollen and edematous and completely obstructed right nostril. Balance of physical examination negative. Diagnosis of sinusitis was made.

P. H.: Pneumonia six years of age, followed by chronic running ear. Attack of sinusitis two months' duration in 1937.

F. H.: Grandfather had epilepsy.

Clinical Course: During A. M. on November 21 the patient had T.104; P.110; R.36. He was expectorating a small amount of blood streaked tenacious sputum and examination revealed a few crepitant rales over right base posteriorly. A diagnosis of lobar pneumonia was made and a specimen of sputum was sent for typing which was found to contain Type III pneumococci. In the afternoon before starting serum, examination revealed positive signs of consolidation over right lower lobe.

Treatment: Usual symptomatic and supportive treatments were instituted. On November 21 at 3:30 P. M. Type III (rabbit) antipneumococcic serum was started in 20,000 unit doses intravenously q. 2 or 3 h. until by 2 A. M., November 22, he appeared much better—T.101, P.98, R.32. However, about noon examination showed T.104, P.112, R.38, and crepitant rales were heard over middle and upper lobes of right lung. At 3:30 P. M. he was given 20,000 units of serum and at 8 P. M. 40,000 units, which were followed by an improvement of his general condition. On the morning of November 23 he appeared to be in a critical condition and his sputum was retyped. The pneumococci showed capsular swelling with all the typing serum. Physical signs were those of consolidation over the entire middle and upper lobes but subcrepitant and moist rales were heard over the lower lobe posteriorly. At this time he had a pneumonic condition of the entire right lung. Intravenous glucose was given to improve his general condition before resuming the use of serum,

and at 5 P. M., November 23, he was given 40,000 units of Type III serum. Also digifoline (1 cat unit) hypo. q. 4 h. was ordered. At 9:15 P. M. 35,000 units of serum were given and at 3 A. M., November 24, 25,000 units, thus making a total of 260,000 units of Type III (rabbit) serum given intravenously.

On the morning of November 24, T.100, P.100, R.34, and general condition seemed much improved. Chest examination revealed subcrepitant rales over upper and middle lobes and large moist rales over lower lobe and broncho-vesicular breathing over entire right chest. Resolution appeared to be taking place; therefore, serum was discontinued. 1,500 to 2,000 cc. 10 per cent glucose intravenously was continued daily. He seemed to be better but still was very toxic. I decided to give him the benefit of the doubt, so sulfanilamide, grs. x q. 3 h. was ordered. He continued to improve by lysis, so, on November 26, after a total of only 160 grs., sulfanilamide was discontinued. His general condition continued to improve except on morning of November 27 his temperature went to 104° and abdomen was distended. He was promptly relieved by a S.S. enema. After this he had an uneventful convalescence.

The pulse rate during the illness ranged around 100, except on the third day it went to 114, fifth day to 120, and on the sixth day to 124. The respiratory rate ranged from thirty-four to thirty-eight. The chart shows the temperature curve.

SUMMARY

A critically ill Type III pneumococcus pneumonia patient was successfully treated with Type III (rabbit) antipneumococcus serum. The first 100,000 units controlled the initial lower lobe involved, but he developed a pneumonic condition of the middle and upper lobes which responded to 160,000 units more of serum, thus making a total of 260,000 units. Intravenous glucose was a valuable aid in treating this case. Digifoline, ice cap, aspirin, forced fluids, and codeine made an important part of the treatment. Sulfanilamide was not started until the patient was much improved and showed signs of early resolution. I do not believe it had any bearing on the outcome of the case.

The case was treated in the home, thirty miles from a hospital.

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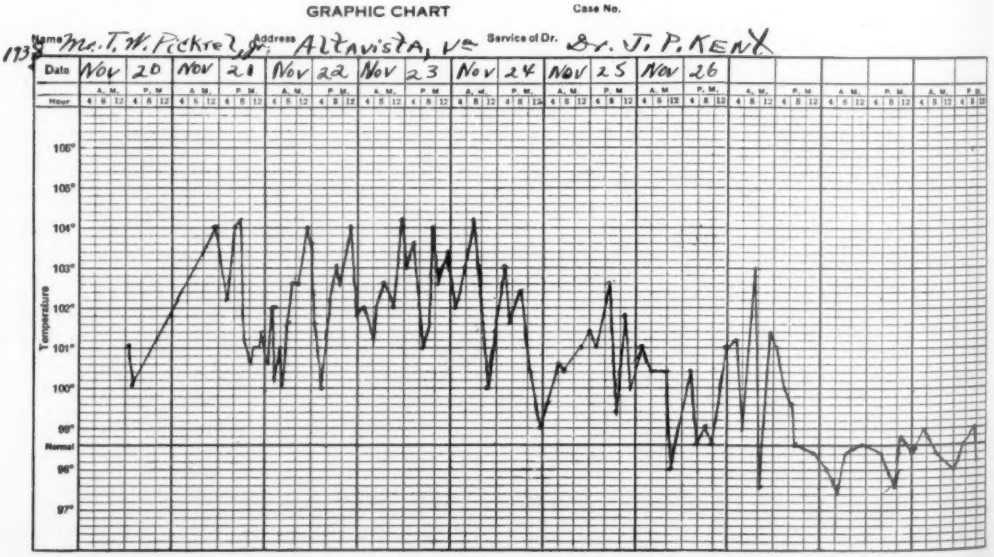

PREVENTION OF THE COMMON COLD.

JOHN R. HAMILTON, M.D.,
Nassawadox, Virginia.

The common cold continues to be a very time consuming disease, being both painful and inconvenient to its victims. It also lays the ground-work for other diseases which are more dangerous and of even longer duration.

I feel that it is impossible to assign a cause for the common cold that can be verified, but it seems to me an acceptable hypothesis that a cold originates with a virus infection accompanied by multiple invading bacteria. In reviewing the following cases collected over the past three years in which vaccines have been used subcutaneously as a preventive measure, I am impressed that some of these patients stated that in the winter following the fall preventive treatment they had the apparent beginnings of colds which lasted from twelve to thirty-six hours but never materialized. It is my impression in these cases that the virus was not affected by vaccine administration but that through it the accompanying bacterial invaders were warded off because the body had been taught to fight certain of these germs.

I wish to stress the method used in administering the vaccine as a preventive measure. I feel it should be started well before the cold season, and instead of the often used four dose method the vaccine was administered at from five to seven day intervals. The amount began with from 0.05 c.c. to 0.1 c.c. and 0.05 c.c. to 0.1 c.c. was added at each dose until one c.c. was administered as the final dose. If possible, any local reaction larger than the size of a silver dollar should be avoided preferably keeping the local reaction much smaller than this by holding, if necessary, the amount to the same as the previous dose or decreasing from the previous dose, and attempting to never have any general reaction.

I am convinced that by following the above procedure the body is gradually taught to resist certain of the germs which at one stage or another accompany the common cold and that this extremely slow method is superior over the larger doses. The number of cases is too few to provide any statistical data but I use them to support my own clinical impression that the administration of cold vaccines using the above technique gives enough good results to justify their use.

In the following cases, unless otherwise stated, the Catarrhalis Combined Vaccine used was a stock vaccine preparation by Lederle, containing per c.c. 200 million mic. catarrhalis, 200 B. freidlander, 200 pneumococcus (I, II, and III), 200 streptococcus (hemolyticus and viridans), 400 staphylococcus (alb. and aur.). In one case Lederle's Catarrhalis Influenza Vaccine was used which is the same as the above plus 200 million B. influenza. The latter preparation when used had a tendency to give more local reaction and more general reaction, and showed no advantage over the Catarrhalis Combined Vaccine.

There being no way to determine a person's susceptibility or duration of immunity to the bacteria used in the Catarrhalis Combined Vaccine, the recommendation is made that he receive a preventive course each year.

Case I. White, male, sixty-seven. Store-keeper. Was seen first in June of 1936 with a history of having since late in April a wheezing, cough, and slight shortness of breath. Past history revealed that he had had a similar attack about ten years before and that for approximately the past twenty-five years he had suffered with about three bad colds a year.

Examination was negative except for hard wax in the ear canals, nasal mucous membranes congested, and a definite wheezing when he talked during the history taking. The lungs were negative, the heart tone poor, and blood pressure was 148 over 80. Laboratory work was negative with the following exceptions: coagulation time seven minutes and blood calcium 8.8 mgms. per 100 c.c. Lung X-ray was negative.

Patient was placed on calcium lactate, grs. ten, three times a day, and digitalis, grs. one and one-half, daily. He improved satisfactorily.

In September of the same year he was started on a course. of Catarrhalis Combined Vaccine subcutaneously, being given it at an interval of from five to six days with the following graduation of doses: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1 c.c., the course being completed by the first of November. At no time during this course did he have any local

reaction larger than the size of a silver dollar, no systemic reaction at all, and no cold.

When seen the next year in September, 1937, he stated that he had had the best winter that he had ever had, only once or twice feeling as if he were taking cold, the entire effects being over within twenty-four hours. The patient stated that at this time he again felt as if he were developing a cold, so the series of cold vaccine was again given at five to six day intervals, starting with 0.05 c.c., repeating the next four doses at 0.05 c.c. The patient stated after each dose that he felt as if he had a little cold and for this reason the next four doses were held to 0.1 c.c. At this point he stated that for the first time he felt absolutely cold free, although at no time had he had more than the slightest signs. The dose was then increased to 0.15, 0.2, 0.25, 0.3 and again held at 0.3 because he had a slight cold one evening during the intermission between doses; then given at 0.35, 0.4, held at 0.4 because of another slight cold, and followed through with 0.5, 0.6, 0.7, 0.8, 0.9 and stopped at 1 c.c., the last dose being given the first week of January, 1938.

The patient was seen by appointment in February and stated that he had a definite cold the first week after finishing the course of vaccine but that it was not severe.

When seen in September of 1938 he was given 0.1 c.c. of Catarrhalis Combined Vaccine and advised to have a general examination. At this time he voluntarily stated that he felt better than he had for years and that he attributed it to being free of colds; and, while his records showed that he had had some slight cold since treatment with the vaccine, he stated that they were so mild that he would have ignored them except that he had been instructed to report the slightest feeling towards a cold. Examination revealed that he had gained ten pounds in weight since being seen in 1936, mucous membranes of the nose were normal in appearance, blood pressure 160 over 100, heart tone fair. Laboratory work gave results within normal limits. He had received during the time since being seen in 1936 no medication except the calcium lactate and small doses of digitalis over the first three months' period, and Catarrhalis Combined Vaccine, as stated.

He had been started on cold vaccine subcutaneously as noted on September first of this year, it being continued at five to six day intervals and in the following doses: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1 c.c. He had no cold during the administration, no systemic reaction, and no local reaction larger than the size of a quarter.

In this case I wish to call attention to the individualization of the administration, the 1936 course consisting of ten doses, the 1937 course consisting of twenty-three doses, and the 1938 course consisting of ten doses. It is felt important to stress the fact that each administration must be based on the events arising in that particular case and no promise should be made the patient to administer the vaccine in any set number of doses. Also, I wish to call attention to the fact that this patient had twenty-five years of experience with his colds before he received vaccine medication and two years' experience with Catarrhalis Combined Vaccine; and he feels that the symptomatic relief has been most satisfactory and he is justly enthusiastic about the procedure to date.

Case II. White, female, age thirty-four. School teacher. Seen first in July, 1937, because she had been advised to have a yearly examination. This was done because her father has an arrested case of tuberculosis. History revealed that she has had colds every year for the past fourteen years, usually three to four colds each winter, developing each new one about the time that the last cold was better. She uses this time limit because it is the number of years she has taught school and they have caused her a great deal of inconvenience while attempting to work. Examination was normal throughout. X-ray of lungs showed no demonstrable pathology. Hemoglobin, Sahli, 90 per cent, with 3,750,000 red cells. Blood calcium 8.6 milligrams per 100 c.c. She was placed on calcium lactate, grs. 5, before meals; ABCD capsules one daily; and one kapseal of Ventriculin, iron and vitamin B after each meal.

She was advised to take preventive Catarrhalis Vaccine therapy and started it on November 2, 1937. It was given twice weekly in the following graduated doses: 0.1, 0.2, 0.3, 0.4, 0.55, 0.7, at which time she experienced a local reaction over the size of a dollar and a slight chill that night. The next dose was held to 0.7 and the time changed to a six-day interval. The next doses were 0.85 and 1 c.c. When seen six weeks later, she had no colds and, when seen in March of 1938, she stated that she had no cold that winter, the first time in fourteen years, and she naturally felt that the vaccine had been a decided help. When seen in September of 1938, she stated

that during the summer she had one cold which lasted two weeks.

She was started on her 1938 course of Catarrhalis Combined Vaccine on September twenty-seventh with 0.1 c.c. subcutaneously. At weekly intervals she was given 0.2 and 0.35. Because the last dose gave her a local reaction larger than the size of a silver dollar, the next dose was held at 0.35. This is the point this case had reached at the time of writing. The calcium lactate and ABCD capsules were continued throughout last winter. This year she was placed on iron sulfate, grs. 3, t.i.d. for 300 pills as preventive treatment for anemia. In this case I merely wish to call attention to the long history of the colds and the first break in their course after therapy was instigated. More definite conclusions may be drawn after several years.

Case III. White, female, age 21. Housewife. Seen first in 1934 at the beginning of her first pregnancy. She was referred to an obstetrician and the accompanying anemia controlled with iron medication. At that time she stressed her difficulty with colds, stating that she had had colds ever since childhood; that it seemed to her her colds are contact colds, having at least one cold a month during the winter season because she takes a cold every time she comes in contact with anyone who has a cold.

She had never received cold vaccine. Vaccine therapy was advised and started the latter part of October, 1935, the first dose being one-sixteenth c.c. At weekly intervals this was followed with two-sixteenths and five-sixteenths, at which time she had a local reaction larger than a silver dollar. Next dose eight-sixteenths was given, no unusual reaction following; then she was given twelve-sixteenths, followed by a full c.c., the last dose being given November 25, 1935.

When the cold situation was again discussed with her on November 19, 1936, she stated that she had no more colds after taking the vaccine treatment in 1935.

On November 19, 1936, she was again started on vaccine therapy. She was scheduled to receive treatment twice a week and was given: 0.1 c.c., 0.2 c.c., 0.4 c.c., 0.6 c.c., 0.8 c.c., and on December 5 1936, one c.c. She was advised to return the first of September of 1937 for preventive treatment again.

When she returned she had had no cold since being seen in 1936. She was again pregnant and had placed herself under the care of her obstetrician. He was written in regard to giving the preventive vaccine therapy and suggested in reply that it be deferred until after delivery as she was expected to deliver about the tenth of September. The patient did not deliver until October sixth, and on October first contracted a severe cold which lasted two weeks.

On November 16, 1937, she was started on her yearly course of cold vaccine, using Catarrhalis Influenza Vaccine at weekly intervals, being given 0.1, 0.2, 0.4, 0.5, 0.6, at which time she developed a severe cold, and the next dose was held at 0.6. She was seen again three days later and the cold had greatly improved. She was again given 0.6 because the last dose had given a local reaction about three inches in diameter. She was then given 0.75, 0.9, and one c.c., and was advised to return the first of August, 1938, for further prevention.

She returned September 6, 1938, stating that she had had no cold since last December, despite the fact her husband, during that time, had been ill with a cold and sinus trouble. This year it was planned to give as few doses as possible, and again the Catarrhalis Influenza Vaccine was used on a five or six day schedule. The doses were 0.2 and 0.3, and then, when she returned for her third dose, she was beginning to menstruate, had a bad cold, and felt extremely ill; so vaccine was not given. She was seen five days later, at which time she stated that her cold was just as bad as any she had ever had but that the time it lasted was much shorter than formerly, the complete course of the cold being approximately eight days, and that it left very suddenly. She was given 0.5 c.c., and the next dose was held at 0.5 because there was a three inch local reaction, and she had also felt that she had some temperature the day following the last dose. At this time she was started on ten grains of acetylsalicylic acid with each dose of vaccine. She was given 0.7 and 0.85, when the reaction was larger than a silver dollar, so 0.85 c.c. was repeated; and on the twenty-sixth of October, 1938, the reaction still being larger than a silver dollar, she was again given 0.85, the last dose of this year's course.

Next year, it is planned to return to the Catarrhalis Combined Vaccine, to start her series the first of August, and, to attempt to keep the local reaction smaller than the silver dollar size.

This case with its long history of colds and its definite improvement during the administration of vaccine lends impressive clinical evidence in sup-

port of this therapy. It is my feeling in this case that more local reaction was obtained with the Catarrhalis Influenza Vaccine than with the Catarrhalis Combined Vaccine and that the Catarrhalis Combined Vaccine was just as effective as the Catarrhalis Influenza Vaccine.

Case IV. White, female, age forty-three. First seen in 1935 with a diagnosis of mixed type arthritis, osteo, rheumatoid, and fibrositis. One diseased tooth was removed. The tonsils were considered possible foci of infection. Her rheumatic medication consisted of sulphur intramuscularly and Streptococcus Immunogen Arthritis intravenously. The arthritic condition was controlled and she progressed most satisfactorily.

In her history, the patient stated originally that she had had ever since 1909 four to six severe colds every winter; that approximately fifteen years ago she received cold vaccine, four dose method, with no results; that eight years ago she again received cold vaccine, four dose method, with no results. The administration of neither the sulfur-diasporal nor the Streptococcus Arthritis Immunogen had any effect on her colds.

In 1936 she was given Catarrhalis Combined Vaccine by her family physician at my suggestion at three to five day intervals, starting at 0.1 c.c. and increasing 0.1 c.c. until 1 c.c. had been given. This was started in November. This had no effect on her regular colds for the rest of 1936. In 1937, although she did not receive a cold vaccine, she had no colds and this had never occurred for a whole year before.

In September of 1938 she again had a cold. On the seventeenth, after she had recovered from her cold, she was started on Catarrhalis Combined Vaccine at weekly intervals in doses of 0.1, 0.2, and 0.3 c.c. at which time the local reaction was larger than a silver dollar. The next dose was 0.3 c.c. and the following dose 0.4 c.c. This was the point reached at the time of this writing.

In this case I feel it is too early to be positive of the results obtained. The points of interest are that, in the past, the four dose method of administering cold vaccine was not effectual; and that in 1935 the administration of intramuscular sulphur and intravenous Streptococcus Immunogen Arthritis had no effect on the colds.

BANG'S DISEASE.

I. D. WILSON, D.V.M., PH.D.,
Biology Department, Virginia Polytechnic Institute,
Blacksburg, Virginia.

Bang's disease, known also as Brucelliasis and infectious abortion, is a chronic, infectious disease of cattle, swine, goats, and occasionally other domestic and wild animals. In man the disease is generally known as undulant fever, Malta fever, or Mediterranean fever.

ETIOLOGY

The disease is caused by a non-motile short bacillus or coccus which is destroyed by pasteurization. Although there is some dispute as to the correct nomenclature, the name *Brucella melitensis* var. *melitensis, Br. melitensis* var. *suis* and *Br. melitensis* var. *abortus* are the terms most frequently used to designate the goat, swine, and cattle varieties of the organism. Their pathogenicity for man is in the order named, the first being the most pathogenic.

SYMPTOMS

The organism frequently exists in the domestic animals without producing noticeable symptoms. When symptoms are present, the most characteristic are abortion by pregnant females, sterility in both sexes, and a higher than normal incidence of mastitis in dairy cows.

PATHOLOGY

The organism gains entrance to the body of susceptible animals through the digestive tract, the conjunctiva, the unbroken skin, and the genital tract. It is carried by the blood and lymph streams to the mammary glands and to the uterus and placenta of pregnant females. It may also be isolated from the ovaries, testicles, epididymi, seminal vesicles, prostate glands and all the lymph nodes adjacent to these organs. When the organism invades the pregnant uterus and its contents, necrosis of the placenta and death and abortion of the fetus usually occur. This may take place at any time after conception or the fetus may be carried full term and be born dead or alive in a moribund state. In some cases,

if the organism is not too highly pathogenic, the fetus may be born alive and not succumb to the effects of the infection.

DIAGNOSIS

The organism causing Bang's disease is readily isolated from the milk (where it is found in great numbers), placenta, amniotic fluid and uterine discharge of infected females. It is recovered with difficulty from the blood, urine and feces. The most practical means of diagnosing the disease, and only method in general use by regulatory officials, is the agglutination test which has shown itself to be a highly accurate diagnostic procedure for the disease.

OCCURRENCE

Bang's disease is spread widely throughout the cattle population of the world, but in swine and goats it is most prevalent in those areas where their concentration is greatest. In Virginia, the Division of Animal Industry of the State Department of Agriculture and the Bureau of Animal Industry of the U. S. Department of Agriculture, in cooperation, have since 1934 tested all the cattle in seventy-eight counties and are working in eight others. Approximately 3.5 per cent of all cattle on the initial test reacted positively. The disease is not of economic importance in the other domestic animals in Virginia and probably is relatively rare in swine and goats.

Bang's disease has existed in Virginia for a long time, but has become prevalent only in the last decade, partly as a result of the advent of the motor truck and the increasing frequency with which cattle are moved from one herd to another. The prevalence of the disease in an area is in almost direct proportion to the amount of trafficking there has been in cattle.

CONTROL MEASURES

The only regulatory measures that have proven successful in the control of Bang's, or any other infectious disease of the domestic animals, has been the complete elimination of all infected individuals. Virginia is leading all the States in the Union in the progress of Bang's disease eradication. As stated above all the cattle in seventy-eight counties have been tested and the work is in progress in eight others. The practice is to test all cattle in a county and, where infection is found, retest the herds at frequent intervals, until all latent cases have been discovered. To December 31, 1938, 1,441,075 tests had been conducted since the State-wide eradication program was begun in 1934. This number includes both the initial and retests and has disclosed over 50,000 infected animals which have been slaughtered. The test is made free of charge to the owners, who are indemnified by funds from State and Federal sources for infected animals. It appears now that Virginia will be free from Bang's disease within a few years and that the Old Dominion will again point the way for the other states to follow. For this we are, in a large measure, indebted to the far-sighted wisdom and judgment of Dr. H. C. Givens, State Veterinarian.

ROENTGEN RAY EXAMINATION OF THE COLON.*

WILLIAM P. GILMER, M.D.,
Clifton Forge, Virginia.

Naturally no attempt will be made to cover in detail all phases of X-ray examination of the colon. We shall endeavor to discuss general principles involved and illustrate the application of these principles with findings in a few of the more common lesions.

Few examinations in the field of radiology require more in the way of experience, judgment and attention to detail than the one under discussion, and few yield more satisfactory results if the requirements are met.

As in all roentgen ray examinations, recordable findings depend upon variations in density. In the case of the colon three methods of attaining this are in general use: First, the giving by mouth an emulsion of some opaque salt, such as barium sulphate, and watching the progress of this meal through the colon. Second, a similar preparation may be given by enema with appropriate examination by screen and plate. Third, a double contrast effect may be pro-

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duced by inflating the colon with air after partial expulsion of the barium enema. In the third method, preparations—other than the usual suspension of barium—which have the property of flocculating on the mucosa may be of distinct advantage since by this method a more detailed study of the mucosa is made possible.

Generally speaking, information in regard to the physiology of the colon is best obtained when the opaque emulsion is given by mouth. Morphological changes are better brought out, more easily located, when the enema method is used. The method or combination of methods to be used must be decided upon for each individual case. When the clinical symptoms point rather definitely to a lesion of the colon, it is usually good judgment to start the examination with a barium enema.

We shall select only a few of the many pathological lesions of the colon in which roentgen ray examination is helpful. First, let us consider the so-called "spastic colon". Many of these cases a number of years ago were given the diagnosis of "spastic colitis," "mucous colitis," and the like, and, although they give rather definite and often spectacular roentgen findings, are no longer correctly considered under the head of colitis. They are not true inflammatory lesions of the colon as those names would imply, but are the reactions of this particular part of the intestinal tract to some general disability, whether functional or organic. These findings are frequently associated with other definite symptoms of neurosis. If we made an estimate of the incidence of this condition among those who come up for examination we would find it high, very high among the neurotic, among women who for long periods have been constipated and taken cathartics in excess, very high in any group poorly adjusted to their environment. The chief reasons for including this condition in such a discussion as this are, first, to call attention to the error of indicating by roentgen report findings that would suggest an organic lesion of the colon when no such lesion exists; second, the grave danger of overlooking a serious organic lesion in our enthusiasm to report this finding which is only a symptom. It is a symptom which calls for an investigation as to its cause. It may be secondary to an organic lesion of the colon or elsewhere, or it may be impossible to find any organic lesion responsible, in which case a neurological basis must be sought.

The roentgen findings in an unstable colon include: a rapid upward passage of the column of barium when given by enema; a decrease in the caliber of the colon, usually most marked in the left, with often dilatation on the right; and changes in haustrations, these being often diminished, effaced or even exaggerated. There is considerable variation in degree of these findings. A section of the colon may be narrowed to pencil size, giving the so-called "string sign".

Our next classification will be considered under the general head of colitis—cases where a true inflammatory condition of the colon exists. The findings in this condition will depend upon the stage which the disease has reached when the examination is made. All of the findings noted in the unstable colon, that is spastic areas, changes in haustrations, narrowing and the like, may be present in a true inflammatory lesion. In fact, it may be impossible to distinguish definitely between an unstable colon and a true colitis in the early stages. Where it is possible to obtain information in regard to the condition of the mucosa the differential diagnosis is much more definite. The longitudinal folds tend to disappear while the transverse become more prominent. There may also be other evidences of a swollen mucosa.

Cases which reach the ulcerative stage show more definite findings. At times low fine indentations and other characteristic findings of ulceration may be noted. Walls are thickened and become more rigid. Haustrations tend to become obliterated. Using the double contrast method of examination roentgenograms frequently show a fine moth eaten appearance. Still later stages may show a markedly shortened, smooth, rigid "gas pipe" colon.

Two lesions of the colon in which the primary etiological factor is a specific organism should be considered. These are lesions due to the tubercle bacillus and to the amœba.

The incidence of gastro-intestinal tuberculosis among patients suffering from the pulmonary form of this disease is surprisingly high. The region of the cecum and the terminal ileum is the most common site for tuberculosis. Roentgen findings include irritability or deformity of this section. The involved area tends to rapidly empty itself. An examination made after giving barium by mouth will frequently show this section empty or partly empty with sections, both proximal and distal, well filled. Any failure to visualize the cecum and adjacent ascend-

ing colon during a gastro-intestinal examination calls for the consideration of tuberculosis as a possible cause.

In only a limited group of cases of amœbic infection is roentgen examination of value. Pathological changes may be so slight that nothing of significance is found. The disease may be so violent that this examination is contraindicated. In subacute cases or cases under treatment this type of examination may be of value in determining the extent of the lesion and in following the progress of a case responding to specific therapy.

Although lesions due to amœba may give no characteristic roentgen findings the condition should be considered when evidence of ulcerative colitis is found. In a typical case the colitis will be localized in a number of areas with apparently healthy portions between. Again, the most frequently affected section is that in the region of the cecum and ascending colon, but this time the terminal ileum is normal.

Colitis due to other organisms will not be discussed except to call attention to the fact that the first evidence of a streptococcic colitis is usually seen in the distal colon.

Our discussion of polyposis will have to do primarily with that type of this lesion implanted on a pre-existing inflammatory process. This group probably includes most of the cases found.

The roentgen findings include those to be expected in a rather long standing ulcerative colitis, irritability changes in haustration and the like. By using the double contrast method more definite evidence of the polypi themselves can be brought out. Typical findings in a well developed case of polyposis will include small rounded areas of diminished density giving a more or less moth-eaten appearance. Care must be taken that small masses of fecal matter are not giving this appearance. Shadows from the latter shift position after partial emptying.

Diverticulosis is another lesion of the colon frequently encountered. The incidence is especially high in over-weight patients past middle life. They are frequently present when evidently not an important factor in the case. It is not unusual to find scattered diverticuli in a case coming up for examination for symptoms due to a lesion not in any way associated with the diverticula. Typical X-ray findings in a case of diverticulosis are rather definite. Small lesions without a fecalith cast a bud-like shadow projecting beyond the lumen and show up clearly if their position is advantageous. If a fecalith is present a ring-like shadow may be present. Films taken after evacuation are important in bringing out evidence of diverticula. The barium may remain in the lesions for long periods after the barium enema has been given. It is not unusual to find retention for days, even weeks.

Diverticulosis becomes a factor when through inflammatory changes a diverticulitis develops. Roentgen ray evidence of this consist in evidence of inflammation, spasm, rapid emptying, swelling of the mucosa with a "saw tooth" appearance to the involved part.

The sigmoid and descending colon are the most common sites for this lesion, though other areas may show involvement.

Benign tumors of the colon are not common unless we consider polyposis in this group and, as has already been pointed out, this lesion is usually a later manifestation of an inflammatory process. Other tumors, such as fibroma, hemangioma, and lipoma do exist. The typical roentgen finding consists of a filling defect dependent upon the size and shape of the tumor.

Carcinoma of the colon shows a high incidence. Among malignant neoplasms of the gastro-intestinal tract this location is second only to the stomach. As to the location of the lesion in the colon, any part may be involved, the sigmoid is the most frequent site.

In advanced cases of carcinoma of the colon the roentgen findings are marked and interpretation relatively definite. Typical findings may include one or more of the following: filling defect either of the "napkin ring" type or irregular fungating in character; obstruction of varying degrees; dilatation proximal to the lesion; changes in haustrations; changes in the mucosal pattern.

The type of lesion giving annular "napkin ring" defects is usually located in the left colon. Evidence of obstruction is an early finding in this type of lesion. The medullary or cauliflower type occurs most frequently in the cecum and rectum. Obstructive findings are usually late. The course of the involved area in a neoplasm is usually eccentric to the normal lumen proximal and distal to it.

Changes in haustrations and in the mucosal pattern are more difficult to demonstrate, but a study from this standpoint is frequently necessary in mak-

ing a differential diagnosis between carcinoma and an inflammatory lesion. In case of carcinoma the area involved is usually abruptly delimited from the uninvolved parts adjacent, while an inflammatory lesion fades more gradually into normal colon. An inflammatory lesion shows evidence of swelling of the mucosa, frequently giving the "saw tooth" margins. In carcinoma, destruction of the mucosa is the expected finding.

Double contrast methods and mucosal studies are important. A carefully done examination or series of examinations in suspicious cases will increase the percentage of correct diagnoses, especially in the early cases. One of our problems here, as in carcinoma elsewhere, is early diagnosis.

Slides were shown in the presentation of this paper.

DISCUSSION

DR. C. H. PETERSON, Roanoke: The hour is late, and I shall take only a short time to discuss this very interesting paper.

There are three points I should like to emphasize. The first is the frequency with which massive hemorrhage occurs from the bowel with sigmoid diverticula. We are quite delighted to find in a fairly high percentage of those individuals that the lesion is benign and not malignant. In the second place, Dr. Gilmer has mentioned the different types of colitis. It is very difficult at times to differentiate localized colitis from malignancy. There is a type of colitis which gives the colon a rigid appearance, without ulcer formation. (The first case I saw I diagnosed as carcinoma of the colon). On proctoscopic examination the colon is found to be injected. Under suitable treatment the patient should get along all right and make a complete recovery within a few months.

The next point is the frequency with which we find carcinoma of the large bowl. We find it in a large number of older patients and in quite a number of younger ones. Any person of middle-age with indefinite symptoms, anemic and run down, should have an examination of the large bowel, because frequently there is a carcinoma there which is producing no direct symptoms.

Dr. Gilmer is to be congratulated upon his paper and particularly upon his lantern slides.

OTOGENIC ACUTE SUPPURATIVE ARTHRITIS.

FRANCIS HENRY MCGOVERN, M.D.,
Danville, Virginia.

All complications of acute mastoiditis are of serious nature. Judging from the paucity of clinical reports in the literature, acute septic arthritis complicating acute mastoiditis is of rather rare occurrence. Although an acute arthritis does not compare with the serious prognosis and mortality of the intracranial complications of mastoid infections, its appearance adds to the gravity of the situation and portends a possible permanent joint disability.

Acute metastatic suppurative arthritis of middle ear or mastoid origin necessarily indicates a bacteremia, but apparently can occur without a venous sinus thrombosis, or at least a clinical or macroscopic thrombosis. Skeletal metastatic lesions can occur in joints, muscle, bursa, and bone. The hips are said to be involved more than any other joint; in this study the knees were involved most frequently.

From an otologic point of view, this problem resolves itself about an early diagnosis, because the successful outcome depends on prompt recognition of the complication and an understanding of the problems of treatment confronting the orthopedic surgeon.

The onset of acute suppurative arthritis is usually sudden. It may begin as a polyarthritis and finally settle in one or more joints. Pain with the joint at rest, and on slight degree of passive movement when adjacent muscles are relaxed, is most severe. Swelling, with effusion into the joint cavity, and tenderness to pressure is marked. There is a sudden elevation in the temperature to 102-104° with a corresponding leukocytosis. Frequently these cases are diagnosed acute rheumatic fever or acute infectious arthritis. The former usually involves mutiple joints and presents less alarming constitutional symptoms. The severity of the symptoms of acute suppurative arthritis and the presence of a primary source of infection should indicate to the wary surgeon the necessity of close observation and early aspiration. The question of aspiration and culture of the fluid is an important one; the procedure is harmless using the proper aseptic technique, and is of great diagnostic and therapeutic value. Osteomyelitis and acute gonorrheal arthritis should be considered in the differential diagnosis.

X-ray is of little or no aid in the early diagnosis. Later it is of value in the determination of joint

damage and the estimation of future joint disability. It is also a help in determining the condition of the bones adjacent to the joint.

Etiologically this condition can be caused by: 1st—direct injury to the joint; 2nd—extension into the joint cavity from an adjacent osteomyelitis or cellulitis; 3rd—metastasis from distant foci. The latter applies especially to this paper. The primary focus can either be an acute infectious disease like scarlet fever, meningitis, or pneumonia, or a localized infection as tonsillitis or mastoiditis.

In children, as studied by Harris, metastasis is the most frequent mode of infection in acute suppurative arthritis—62.8 per cent of his cases. Traumatic acute suppurative arthritis occurred in only 9.8 per cent, and extension into the joint from an adjacent osteomyelitis in 27.4 per cent. The ear was said to be the primary focus in approximately 29 per cent of the metastatic cases, or 10 per cent of all cases. In adults, of course, trauma is the chief etiological factor.

Atkins reported forty cases of lateral sinus thrombosis in which metastasis occurred in sixteen cases. The joints were most commonly and the lungs least commonly involved. All but one of the joint metastatic cases recovered.

Considering joint suppuration from all causes, the staphylococcus is cultured in approximately half of these cases. The hemolytic streptococci is found in 25 per cent, and the remainder is caused by a variety of organisms, meningococci and pneumococci particularly. In metastatic arthritis, especially of ear origin, the streptococcus and pneumococcus predominate.

Through the courtesy of Dr. Fletcher Woodward, I examined the records of the University of Virginia Hospital. During the last ten years twenty-four cases of purulent arthritis were recorded. Of these two, or 8 per cent, were associated with ear infection. The first case presented a history of acute tonsillitis and of otitis media; pneumococcus type III and staphylococcus albus were cultured from the knee joint. In the other case the otitis media complicated measles and pneumonia; the suppuration of the hip joint was preceded by a mastoidectomy. The blood culture was negative. Non-hemolyticus streptococcus was cultured from the hip joint. Seventy-one per cent of the remaining cases of suppurative arthritis, mostly adults, were of traumatic origin; in 21 per cent the etiology was unknown. Bacteriological studies were made on eight of these cases; in seven the staphylococcus albus or aureus were cultured and in one the hemolytic streptococcus.

Krida writes of the complications of joint suppuration. In their order of importance they are: 1st—death; 2nd—chronic suppuration with discharging sinuses and chronic toxemia; 3rd—bony ankylosis with or without deformity; 4th—joint disorganization with painful limitation of motion usually with deformity; 5th—temporary stiffness of the joint with gradual recovery of function.

Most authorities advise early aspiration, application of heat by all methods, and joint rest by means of the posterior plaster or similar splint. The further treatment of the joint depends on the severity of the infection and the training and opinion of the attending surgeon. Aspiration and lavage; incision and drainage; joint opened by one or more incisions and motion instituted according to the technique of Willems; and wide open drainage are the usual surgical methods employed. Active and passive motion can be started as soon as pain and tenderness subside. If the infection proceeds to joint destruction, ankylosis should be in the most desirable position.

Of course, the primary focus of infection should be eliminated as much as possible. The difficulty of diagnosing a septic venous thrombosis in the presence of two known sources of infection, ear and joint, is apparent. The question of opening the lateral sinus and jugular ligation should rest on the blood culture, plus the appearance of the lateral sinus at operation.

Frequent blood transfusions are of great importance. Chemo- and sero-therapy are of value, depending upon the offending organism.

CASE REPORT

Patient, young man, age twenty-three, entered the hospital February 19, 1937. History of acute otitis media with myringotomy performed three weeks before. Because of increase in auricular pain, elevation of temperature to 101°, and profuse otorrhea, mastoidectomy was advised and performed the day of admission. A pneumatic mastoid was found with cells partly broken down and filled with pus and granulation tissue. The sinus plate was intact. The post-operative course was uneventful until the third day, when the temperature suddenly rose to 104° and the patient complained of pain in the right knee and left elbow. The knee became red, swollen

and very painful. X-ray of the knee was negative. Aspiration of three c.c. of clear fluid was cultured and found to be Type VIII pneumococcus, similar to the pneumococcus cultured from the mastoid. The leg was immobilized in a posterior splint and heat applied. A transfusion was given. Sulfanilamide was tried over a period of time with no apparent result. The temperature remained between 103° and 104° and the white blood cells between 20,000 and 32,000. Repeated blood cultures were negative. Two additional transfusions were given. The otorrhea ceased several days after the operation; the post-auricular wound healed surprisingly promptly. X-rays three weeks later showed haziness of the joint outlines and considerable destruction about the external condyle. The temperature gradually subsided until forty-nine days later when the joint was incised and pus evacuated. The culture of this pus was reported as hemolytic streptococcus and stapyhlococcus. The patient was discharged six days later. Physio-therapeutic treatment was instituted with a gradual improvement in the joint disability, until at the present time only a slight limp is present.

A case of otogenic acute suppurative arthritis is reported. Otologists should be familiar with this complication to aid in its early diagnosis and prompt treatment.

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563 Main Street.

ACUTE ARSENIC POISONING.*

W. A. PORTER, M.D.,
Hillsville, Virginia.

I wish to treat this subject to point out the difficulty at times of making the diagnosis, and to provoke discussion that will prove of value to all.

DEFINITION

Acute arsenic poisoning occurs from the ingestion of large amounts of arsenic within a short period of time or ingestion of small amounts of the drug by persons who have an idiosyncrasy to arsenic.

SOURCES OF POISONING

Poisoning may come from the ingestion of arsenic trioxide (which is the form most frequently used in medicine), Paris green, Scheeles' green, fly paper and fly powder, rat poison; from the use of cosmetics, and from the use of arsenic plasters applied to skin cancers; from the inhalation of the fumes of arsenic in chemical laboratories, etc.

PATHOLOGY

Probably the most pronounced immediate effect of arsenic is its direct effect upon the capillaries, generally, lowering their tonicity, even to the point of and including paralysis. This is particularly true in the gastrointestinal mucosa where the dilated capillaries, with their markedly increased permeability, allow large amounts of fluid to escape with the production of a watery diarrhea and the resultant dislodging of superficial layers of mucus membrane which appear as shreds in the stools. The swelling, hemorrhage, diphtheritic inflammation with ulceration of the gastrointestinal mucosa is made worse by the re-excretion of absorbed arsenic through the mucosa.

The effect of arsenic on the nerves is at first a stimulating one. Though the biochemical changes are poorly understood, it is believed that arsenic has an affinity for the lipoid substance covering peripheral nerve fibers, with consequential nerve changes on continued stimulation, which are those of a peripheral neuritis and lead to degeneration and loss of nerve function. When large amounts of arsenic are taken, there is a sudden stimulation with less inflammation than in chronic poisoning, followed by a secondary depression or paralysis of function coming on more rapidly than that following inflammation. The sensory nerves are affected first, then the motor nerves. Occasionally the cranial nerves are involved. The most frequent and the most important one to be involved is the optic nerve with resultant varying changes in vision.

In fatal cases respiration ceases before cardiac ar-

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rest occurs, but it is not definitely known whether the effect is a depression of the respiratory center in the medulla or an effect of the circulatory change. The heart is affected in both its muscle and nerve supply.

There seems to be a direct effect of arsenic upon the cells of the tissues of the body generally, the liver, kidneys, spleen, intestines, muscles, skin being chiefly affected and named in order of severity. The cells exhibit a fatty degeneration.

Metabolism of nitrogen is markedly increased, as evidenced by the increase of nitrogen in the urine. The glycogen store in the liver is depleted, with a diminished alkalinity of the blood resulting from the by-products of glycogen.

ABSORPTION AND ELIMINATION

Inorganic arsenic, and organic not so promptly, is absorbed rapidly, whatever its mode of administration, and is gradually eliminated in the urine, feces, sweat, shedding epithelium, and in milk of nursing mothers.

The minimum lethal dose has been variously stated as being from one and one-half to ten grains, though recovery has been reported after ingestion of amounts up to two ounces.

SYMPTOMS

The symptoms of acute arsenic poisoning begin with a sweetish, metallic taste and a sensation of heat in the mouth and throat, usually very promptly after the ingestion of the arsenic, to be followed, usually in one-half to three-fourths hour, by dysphagia, burning pain in the esophagus and stomach, and nausea. Later the pain increases, vomiting occurs, and a profuse watery diarrhea sets in. Blood may occur in both vomitus and stools, but more characteristic of the stools after the diarrhea persists for a short time is the presence of shreds of intestinal mucous membrane together with serous fluid coming from the very permeable gastrointestinal capillaries which may be paralyzed. These stools have the appearance of the so-called rice water stools of Asiatic cholera. The rapid loss of fluid induces an excessive thirst; the skin becomes pale and cold; the urine becomes scanty or suppressed, frequently albuminous. Headache, giddiness, chilliness, fever, cough, cramps in the abdomen and limbs make their appearance. Most toxic cases show collapse, with a rapid, feeble pulse, dyspnea, enfeeblement of the heart muscle, coma, and sometimes convulsions precede death. Collapse may come early from direct effect on heart and brain, with little pain or gastrointestinal symptoms. Fatal cases have occurred as early as twenty minutes, but usually survive ten to forty-eight hours, though may live for a week or longer, ending by circulatory failure, as evidenced by edema, pronounced and persistent fall in blood pressure, cyanosis and cramps, followed by coma, convulsions, and death. Some cases manifest nervous excitation, restlessness and delirium, while others present sleep and coma as the chief symptoms.

In non-fatal cases there are delayed symptoms of anorexia, digestive disturbances, conjunctival irritation, swelling of eyelids, sensory changes characterized by hyperesthesia, formication, paresthesia, pain in extremities, acne-like eruption, falling hair, loss of fingernails, motor paralysis with muscular atrophy, and contractures.

DIAGNOSIS

The chief condition to be excluded in the differential diagnosis is Asiatic cholera, which may practically be ruled out where no epidemic is known to exist. In cholera morbus the dejecta is less likely to contain shreds of mucous membrane and blood than in arsenic poisoning and the pain is usually more severe in the latter. Strong acids and alkalis leave corrosive evidence and the rapid onset in arsenic poisoning will distinguish it from poisoning by lead or mercury.

TREATMENT

The first efforts at treatment should consist of repeated gavages with the aid of a stomach tube or emetics and the official U. S. P. Ferri hydroxidum with magnesii oxidum administered every fifteen minutes in ounce doses until four to six doses have been given (prepared by mixing forty cc. liquor ferri tersulphatis with 125 cc. water. Rub ten grams magnesium oxide with water to a thin mixture, add enough water to make 750 cc. and add gradually to the ferric sulphate while shaking). This should be evacuated from the stomach in a short while and a castor oil or saline purge given. Solutions of iron salts, such as tincture of ferric chloride, Monsel's solution, etc., together with magnesium carbonate or sodium carbonate, or any alkali, may be used. Sodium thiosulphate, intravenously in seven and one-half grain doses, or thirty grains orally, has been used, but some investigators are unable to confirm its usefulness. Milk and chalk powder after lavage has been successfully used. Opium to check vomiting and diarrhea, saline hypodermoclysis to make up

for the fluid lost and stimulate elimination by way of the kidneys, demulcent drinks and bismuth to soothe the inflamed mucous membranes, and stimulants such as digitalis, caffeine, strychnine, and external heat in collapse. In non-fatal cases massage, electrical treatments, hot baths, sodium salicylate and potassium iodide are useful in the reestablishment of nerve and muscle function and to prevent atrophy.

I wish to report the following ten cases of arsenic poisoning that have occurred in my practice.

J. A., aged seventy-three; I. A., his wife, aged thirty-nine, and their children, M. A., age twelve, L. A., age ten, C. A., age nine, and R. A., age eight; and Mrs. A's brother, age thirty-six, had lunch about 12:30 P. M., April 7, 1938, and partook of boiled Irish potatoes, cooked the night before, boiled Pinto beans, cooked before lunch in water brought from the spring that morning, head lettuce bought from a chain store, butter, preserves, corn bread, sweetmilk and buttermilk. The beans were seasoned with a ham bone. Between the hours of 3 and 4 P. M. (two and one-half to three and one-half hours lapsed time) all patients began to have a burning type of pain in the throat and esophagus, with nausea and vomiting occurring in a very few minutes. No hemoptysis. Headache, dizziness and chilliness made their appearance along with the above symptoms. Abdominal cramps and pains in the limbs came on a short time after the appearance of the vomiting. The vomiting and abdominal pain continued at intervals over a period of sixteen days in most of the patients. The cause of this was primarily due to the daily consumption of small amounts of the arsenic for the first twelve days. Photophobia, minor disturbances of vision, slight conjunctivitis, edema of eyelids and face was present rather early in all patients. The temperature ranged from ninety-nine to 103.8 F. The pains in the limbs gradually grew worse; areas of anesthesia developed on legs; in some, the loss of joint sense occurred. Weakness developed in all muscle groups of upper and lower extremities of all patients and progressed in three to four weeks to a paralysis of extensor groups of muscles in arms, forearms, and thighs, flexor groups in legs, and extensor groups to toes, with muscle atrophy and contractures following the paralysis, in all patients except J. A. (father), I. A. (mother), and H. G. (neighbor).

G. M., age seventeen, and J. M., age fifteen, two other children, came in from school and partook of the same food as the others between 4:30 and 5:00 P. M. and between 8:00 and 9:00 P. M. developed the same symptoms and in the same sequence as described above. J. M. was the only case to develop weakness of the muscles in the lumbar area of the back.

H. G., age twenty-five, a neighbor, ate biscuit, ham (same as that cooked with the beans above), and drank coffee on the second day after the onset of illness in the others and developed dizziness, nausea, vomiting, abdominal pains, and slight numbness of both feet. These symptoms cleared up in a few days without treatment or any sequelae.

After cessation of the vomiting patients experienced a loss of appetite, gaseous indigestion, varying degrees of constipation, and a spasmodic cough developed with numerous large moist rales throughout both lungs. The abdominal pains began to improve as soon as the vomiting ceased. The neuritic pains gradually grew worse for six weeks after onset and have been present at intervals since. The first definite improvement began about nine weeks ago, with rather marked improvement in the past five weeks.

Nosebleed occurred in L. A. and R. A.

All experienced some loss of hair. L. A. had a severe dermatitis beginning three weeks after onset of illness, with a macular rash which soon became pustular in centers and finally ulcerated over large areas of buttocks, flanks, shoulders and back of head where all of hair came out. This is returning. It required nearly four weeks for complete healing.

Representative of blood findings is that of R. A. who had a RBC of 1,961,000; WBC of 4,250; polys 76 per cent; Hb. 71 (Dare). at this time, September 21, 1938, the RBC was 3, 541,000, white BC 5,450. Hb. 81 (Sahli).

All specimens of urine showed a specific gravity ranging from 1.008 to 1.016, cloudy, albuminous, with occasional hyaline cast. The urinary findings are negative at this time.

Treatment consisted of bismuth and purgation at first. Lavage was unnecessary as the stomach was relieving itself of everything placed in it as rapidly as possible. Citrocarbonate was given to alkalize the urine. Codeine with acetyl-salicylic acid compound by capsule was given for relief of the pain; tolu and dionin for cough; salicionyl, sodium salicylate, and heat for the neuritis. Heat (dry), steam baths, and massage were used for muscle atrophy and contractures; alcohol and ammoniated mercury (10 per

cent) for the dermatitis. Five weeks ago I began using vitamin B_1, 800 international units per day, in the treatment of the neuritis.

The salient feature of these cases is the absence of a diarrhea.

It is my belief that the use of vitamin B_1 has a definite place in the treatment of toxic neuritis from metal poisoning, as evidenced by the rather prompt improvement of neuritic pains after the administration of vitamin B_1 had been in progress only a few days.

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SNARES AND PITFALLS IN MEDICINE AS SHOWN IN THE REVIEW OF THREE CASES: BRILLIANT RESULTS AND CURES IN MODERN MEDICINE AS IN TWO CASES.*

WILSON E. DRIVER, M.D.,
Norfolk, Virginia.

"One bright sunny afternoon when the nineteenth century was hovering over the Beardsley period, two middle-aged men were strolling along Bayswater High Street, London. One of them, midway between fifty and sixty, was called George Louis Palmella Busson du Maurier. The other, nine years younger than his companion, inscribed himself simply Henry James.

"du Maurier was an artist on the staff of *Punch*. James was a novelist. Henry said to George, 'I would like to write a novel, but plots are hard to find.'"

"'Plots,' jested the *Punch* artist, 'I am full of plots!'"

Thereupon he told his friend the story of a Scotch-Irish model of the Quartier Latin who had lovely feet but was utterly tone-deaf, and who was converted into a magnificent *prima donna* by a sinister but capable Oriental mesmerist. Some attractive Britons—art students—entered into the picture, and there were large ingredients of love interests, studio life, psychoanalysis ahead of time, and enough other related complications to delight any seeker after plots.

"But you ought to write that story," declared James to du Maurier at the conclusion of the scenario.

"I can't write," replied du Maurier. "I have never written. If you like the plot so much, you may take it."

The gift was too valuable to accept, James demurred. The enthusiasm that James had shown instantly kindled a fire in du Maurier that the latter on reaching home, pulled off his coat, sat down and wrote until far in the morning and completed two installments of his first novel. This took most of the night, and the novel was not "Trilby," and had nothing to do with a Scotch-Irish model, or a sinister mesmerist. The story was called "Peter Ibbetson."

Almost at the same time two teachers of medicine were divagating one afternoon in Prospect Park, Philadelphia. They were discussing medical teaching, and especially the medical curricula for the coming session. The elder and larger of the two gentlemen was telling his companion freely what he thought. It was well known among this gentleman's friends that he had nothing in common with a person who was easily convinced. His reputation was for firmness and stability. During my youth there was an Episcopal Bishop who preached in a church near my home who bore the same reputation. In short, this medical teacher, William Pepper, was a fundamentalist. It was his habit to punctuate what he was trying to convey by using pertinent quotations. In answering the sum of questions, from his companion, he said, "By this path, youthful intelligence invariably passes, incredulous of snare and pitfall where lie the bones of many a savant under magic blossoms, nourished by creeds long dead."

"The younger man was a Celt in appearance, of a very dark, almost olive complexion, with a rather long, drooping black mustache—a Celt in his charming vivacity and brilliancy, and in his sparkling wit. He rarely expressed his opinion, but was rather given to asking questions. He had in his mind the cause

*Read before the Norfolk County Medical Society, February 24, 1938.

of disease, at that time so rarely known—research work, an unexhibited, and, therefore, untried curriculum. As a teacher, William Osler was wholly simple and devoid of circumstance or the least attempt at studied eloquence or theatrical effect. He taught mainly by the bedside. His alert eye missed little. His few, kindly, often droll words gained the early confidence of the patient, and kept the student on his tip-toes. His talks in the ward were replete with epigrams. The right adjective, often quaint and unusual, was always on the tip of the tongue, and to a rare degree he possessed the power to inspire in patient confidence, courage, and hope; in student, enthusiasm. The equanimity that he preached, he exemplified—nothing perturbed him."

A few weeks went by after his walk through Prospect Park in October, 1888, when he was visited by a delegation from a not distant city and was offered the chair of medicine in a university which was growing in recognition and fame. In its connection a large modern hospital was nearing completion, nearly ready to receive patients. This dynamic man left the University of Pennsylvania where he had been called in 1884 as Professor of Clinical Medicine and in due time accepted the call as Professor of Medicine at the Johns Hopkins University, and Physician-in-Chief to the Johns Hopkins Hospital. But the medical school was delayed in its opening for over two years because of lack of funds. During this time he became restless, and he, too, pulled off his coat and wrote a new practice of medicine. In 1892, he published his treatise on "The Principles and Practice of Medicine," which, largely because of its personal quality, because it represented the fruits of actual observations and experience, has been, for so many years, the standard textbook of medicine in the principal universities all over the world. It turned the Austin Flint Book of Medicine bottom side upward.

After graduating in medicine the summer of 1893, I was made Surgeon in charge of the Presbyterian Hospital, in Baltimore, Maryland. One Sunday afternoon while walking with a prominent surgeon's granddaughter, she said to me, "Do you know that Dr. Osler is going to give his first bedside clinic tomorrow?"

I said, "No," but when I went home I arranged my duties so that I went to the Johns Hopkins Hospital the next morning and at the door I was told by the colored doorman that he did not know where Dr. Osler was keeping his clinic. While hanging up my hat and coat, a middle-aged gentleman, displaying a very heavy black mustache, who was wearing an Oxford Prince Albert coat came to hang his coat and hat at the same place and I said to him, "Do you know where Dr. Osler is giving his bedside clinic this morning?"

He said, "Yes, I will show you."

While walking down the corridor this man put his arm around my shoulders, something that would have hardly occurred with anyone of the thirteen pillars at the school of the university where I had just graduated. As we turned the corner and passed several wards, he turned in the ward where his assistant and nurses stood by a bed ready for the lecture. The bed sheet was pulled down, and the man's shirt was pulled up and in his search for rose spots, he raised up and said, "Gentlemen, this is not a case of typhoid fever: this is a cast of syphilis." And during the clinic, he said, "Gentlemen, when you know syphilis, you know all medicine." This pertinent phrase went around the world.

Thirteen years went by after he began to teach at the Johns Hopkins University and he was visited by another delegation. This time he was offered the position as head of medicine of the United Kingdom of Great Britain and Ireland. A few days before he left to take up his new work, he addressed a graduating class of young men emphasizing the necessity of making good in their youth. He, too, was given to using quotations, and especially when it came to arousing enthusiasm in young students. Dr. Osler in his speech at the Commemoration Day Celebration at Johns Hopkins University of February 22, 1905, said he had two fixed ideas:

"The first is the comparative uselessness of men above forty years of age. The effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty—these fifteen golden years of plenty. . . . My second fixed idea is the uselessness of men above sixty years of age and the incalculable benefit it would be in commercial, political and in professional life, if, as matter of course, men stopped work at this age. . . . In that charming novel, 'The Fixed Period,' Anthony Trollope discussed the practical advantages in modern life of a return to this ancient usage, and the plot hinges upon the admirable scheme of a college into which at sixty men retired for a year of contemplation before a peaceful departure by chloroform. . . . The teacher's life should have three periods—study until twenty-five, investigation until forty, profession until sixty, at which age I would have him retired on a double allowance. Whether Anthony Trollope's suggestion of a college and chloroform should be carried out or not I have

become a little dubious as my own time is getting so short. . . ."

This quotation, as it appeared in the paper, but not as quoted by Dr. Osler, is now familiar to the laity as well as to doctors. The morning after Dr. Osler made this address, the headlines in the newspaper on the subject of his address carried the suggestion that was appropriated by the employer business man throughout the country, and in due time the elderly employee had reason to feel that Dr. Osler's remarks were a source of his impending calamity. Notwithstanding Dr. Osler's interest in young men, their progress and accomplishment, if he had had the slightest intimation how the business world felt towards the old, experienced employees and the use of these remarks as a beginning elderly man's purge, he would have refrained from using quotations or any part of the theme suggested by Anthony Trollope. Dr. Osler was wholeheartedly interested in mankind, and above all, the dependable, elderly working man.

As time has gone by, I find myself weighing the prescient power of each of those men's minds who were promenading in Prospect Park, and I am convinced that Dr. William Pepper, a finished gentleman, was right in some of his dogmas, but was wrong in others, while Dr. William Osler, who was such a friend to all and to me, unintentionally influenced, I believe, his students who became professors to see the scientific side of their relation to their patient and to treat him accordingly, instead of the old method of considering the patient first, as he himself exemplified.

Shortly after attending the bedside clinics of Dr. Osler, I was in Norfolk, and heard a sermon by a young divine at St. Paul's Church, the theme of which was, "Do not take away the bad until you have the good to put in its place." The text was from Christ's parable about the unclean spirit going out of a man and coming back with seven other spirits and finding the man's life empty. Christ's comment on it was that the last state of that man is worse than the first. The parable is found in St. Matthew, Chapter 12: verses 43-45. Over forty years have gone by; that young divine was Henry St. George Tucker, now Bishop of Virginia, and Presiding Bishop of the Episcopal Church of the United States.

THREE CASES THAT HAVE TO DO WITH SNARES AND PITFALLS

Case I. Mrs. A. J., aged sixty-eight years, consulted me on May 17, 1899. History as follows: Eyes paining for two months, and failing vision. Headaches have been very bad, but are waning. Vision in the right eye is 15/200. The eye was seemingly free from gross pathology. The tension by palpation, found near normal, probably slightly increased. Vision in the left eye was 15/50. The tension was plus 1. The conjunctiva was slightly injected. Otherwise the eye was normal in appearance. Diagnosis of glaucoma simplex was made.

Treatment was begun immediately. Instillation in the eye, alternating with hydrobromide of pilocarpine, and sulphate of eserine. Both eyes responded favorably to this treatment, and by May 30, the vision in the left eye was 15/20.

Incidently Mrs. A. J. spent part of her time in Norfolk, and part of her time with her sister in New York. She requested me to give her a letter to Dr. G. in New York. She consulted Dr. G. and he had his nurse instill drops in her eyes for further examination with the ophthalmoscope. The electric ophthalmoscope had just come into vogue. When she returned next morning, the sight in both eyes was much reduced. Dr. G. felt it wise to operate at once, doing an iridectomy on each eye. The vision only partially returned after operation. My records show that Mrs. A. J. consulted me again on November 6, 1899. The vision in the right eye was 1/200, and the vision in the left eye was barely 10/200. There was no further improvement in the vision in either eye. She only had sufficient vision to go from room to room in her home, where she was perfectly familiar. She died in February, 1907, and never became totally blind.

Case II. Mr. J. P. W., aged fifty-six, consulted me on May 22, 1924. History as follows: The first of the year he woke up one morning with severe vomiting spells. Later on he became very dizzy and deaf in the right ear. He was dizzy for five or six weeks. At the end of this time he thought he was getting better when suddenly he noticed that he had double vision. He was then unable to walk for the constant vertigo. He wrote to me for an appointment, and my secretary wrote him that I had just left the city and would not be back for six weeks. He went to Johns Hopkins Hospital where he remained for six weeks. He had numerous blood

examinations, which were negative for syphilis. At the end of six weeks, I returned home, and when I was entering my office he was brought in. He was told he would have to remain several days to arrive at any decision in his case. Blood was taken and sent to three laboratories, and all reported negative. On the third day I told him that his name sounded familiar. He said that his daughter had consulted me and was successfully treated for eye trouble three years ago, and that was why he was seeking my advice. The secretary speedily found her chart and the findings were that she had well marked Hutchinson's teeth and interstitial keratitis and choroiditis. Hutchinson's teeth, together with interstitial keraitis were responsible for a diagnosis of inherited syphilis. This twelve-year-old child had active treatment for a number of months and responded to the anti-syphilitic treatment. On the third day this gentleman, Mr. W., was told there was no necessity for him to give up his business and go home and fade out. He was encouraged to follow a treatment which might be of great benefit to him. It was thought that his double vision would probably disappear within a few months, and his vertigo would also yield to the treatment. Mr. J. P. W. responded to the anti-syphilitic treatment, kept his office force, and in eight months he was able to resume his work in a normal way. Beware of negative Wassermann tests in old, long-standing cases.

Case III. Mrs. M. C. B., aged thirty-six, consulted me April 6, 1936, giving the following history: She noticed some trouble with her eyes one week ago, the right much worse than the left. At this time, the right is totally blind for objects; only sees the light. At first there was some pain about the eyes. But this did not last long. Has no headaches, but is nervous. Right eye vision: Large objects are not made out. Lids and conjunctiva negative. Tension normal. Cornea clear. Pupil normal. Iris active to light. Lens clear. Vitreous clear. There is marked papillo edema or so-called choked disc.

The vision in the left eye is 20/30. Lids and conjunctiva negative. Cornea clear. Pupil normal. Tension normal. Iris active to light. Vitreous clear. There is papillo edema, but not so marked as the right eye. There are no hemorrhages in the retina. Blood was sent to three laboratories; all reported negative.

Notwithstanding negative skin lesions, enlarged glands or other evidences of syphilis, she was given energetic anti-syphilitic treatment.

At the next visit, the papillo edema had increased, and she was greatly alarmed, feeling that the vision in the left eye was rapidly disappearing. Fearing a brain tumor, I immediately got in touch with Dr. Walter E. Dandy at the Johns Hopkins Hospital, and he kindly consented to see the patient the next day, which he did, and she stayed under his observation for ten days. With Dr. Dandy's permission, I incorporate his findings in his letters to me at the time when she was under his care, and a later communication to me concerning the case:

MAY 4, 1936.

DEAR DOCTOR DRIVER:

Mrs. B. has papillo edema without intracranial pressure. It is optic neuritis with a syphilitic origin. She has a positive Wassermann in the blood and spinal fluid. Usually in these cases of optic neuritis with loss of vision one is not so fortunate in picking up the syphilitic etiology, but I should feel that in view of the positive Wassermann that there could be no doubt that this is the causative factor. She will return to you very shortly.

Yours very truly,
Signed: DR. WALTER E. DANDY.

He then returned her to me, saying she had a positive reaction for syphilis. She had anti-syphilitic treatment. The papillo edema disappeared. She regained completely the sight in each eye.

After a personal interview with Dr. Dandy about this case, I received the following letter from him:

APRIL 22, 1938.

DEAR DOCTOR DRIVER:

With Mrs. B.'s papillo edema, of course, the presumption was that she had a brain tumor, but this is only a presumption because other lesions give it. An air injection was made into the brain and the ventricles were normal. This unequivocally excludes a brain tumor, and means that she has an optic neuritis. Since she had a positive Wassermann the presumption is the changes in the eyegrounds were due to syphilis, although it may well be entirely independent of the syphilis. It is a condition which is quite common without the existence of syphilis. The fact that her condition has cleared under syphilitic treatments does not necessarily mean that it is syphilitic; it may just be a normal course of events in a non-syphilitic neuritis.

I am now reporting a series of about thirty such cases, and she is, I think, the only one with syphilis. They all cleared spontaneously in the course of a few months.

Yours very truly,
Signed: DR. WALTER E. DANDY.

TWO CASES THAT HAVE TO DO WITH BRILLIANT RESULTS AND CURES IN MODERN MEDICINE

Case IV. Mrs. M. B., aged forty-seven years, consulted me January 12, 1938, with the following history: She had been married twenty years. Has no

children. Two years ago while walking home from work at the mill where she was employed as inspector of stockings, vision became blurred in both eyes, right eye worse, and has continued to grow worse, until now she can only see light with right eye, and does not recognize large objects with left. No pains in the eyes. She has always been a large woman.

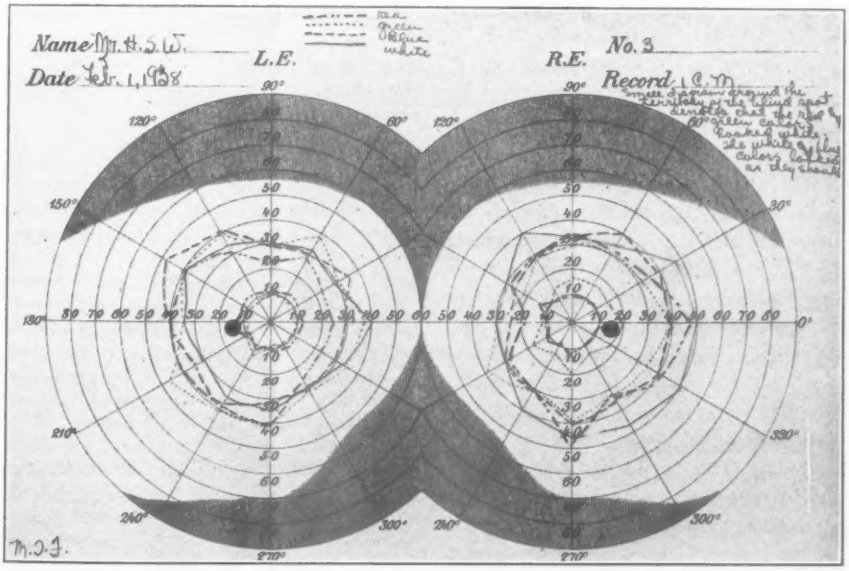
Findings.—Right eye: Vision, light perception, does not count fingers or recognize objects. Lids and conjunctiva negative. Tension normal. Extra-ocular muscles negative. Cornea clear. Pupil irregular in shape, and has fringe on edge of iris and is adherent to the anterior surface of the capsule of the lens. Pupil is two and one-half mm. in diameter and does not react to light. Lens is clear. Vitreous clear. There is an enormous amount of white deposit in the retina. Outlines of optic nerve are not distinct.

Left eye: Vision—Sees the movement of the hand at six inches. Lids and conjunctiva negative. Extra-ocular muscles negative. Tension normal. Cornea clear. Pupil is 3 mm. in diameter. Iris does not react to light. Lens clear. Vitreous clear. There is an enormous amount of white deposit in the retina, obstructing the view of the blood vessels. The outline of the optic nerve is clear. The few blood vessels that are seen are small, much smaller than normal. This condition made me suspect Diabetes, and I said as much to her. She answered me, "Doctor, I had Diabetes five years ago. I was cured! I have the syringe at home the doctor gave me to use." A specimen of the urine showed large amounts of sugar, we thought as much as 6 per cent. She was given a prescription for a new syringe, and insulin. After three weeks' treatment she could see to walk in my office.

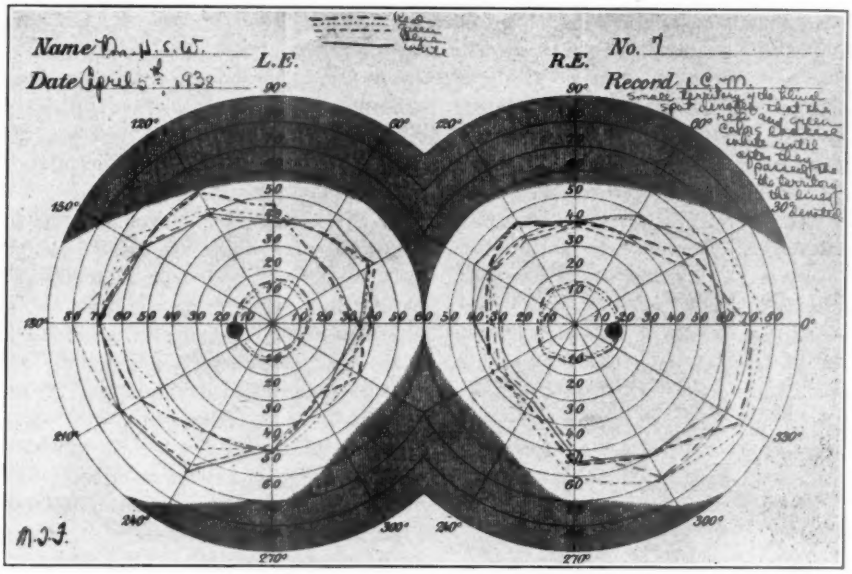
If Mrs. M. B. had thoroughly understood that the disease for which the doctor was treating her was only relieved by the use of insulin and that the insulin had to be continued, I do not believe she would have had the severe changes in her eyes.

Case V. Mr. H. S. W., aged thirty-seven years, consulted me about his eyes on May 18, 1936. History as follows: The eyes pained and began to trouble him one year ago. They burned and ran water. The sight has failed rapidly and after five months he could not see to read large print and could not recognize large objects. His doctor had been treating him for syphilis, but was not sure whether his condition was syphilitic or not. Wassermann test showed +3 examination. At this time he has stopped drinking whiskey, but is drinking beer. My findings were:

Right eye—vision, 15/200, but this is not central vision. The eye had to be turned well toward one side and upward. Lids and conjunctiva negative. Extra-ocular muscles negative. Tension normal.



Mr. H. S. W., February 1, 1938. Small diagram around the territory of the blind spot denotes that the red and green colors looked white. The white and blue colors looked as they should.
Explanation: Red: Two dots and two dashes. Green: Dots. Blue: Dashes. White: Continued line.



Mr. H. S. W., April 5, 1938. Small territory of the blind spot denotes that the red and green colors looked white until after they passed the territory the lines denoted.

Cornea clear. Pupil normal. Iris active to light. Lens clear. Vitreous clear. Retina, choroid and optic nerve show no visible change. No inflammatory deposits in the retina.

Left eye—vision 15/200. Central vision was negative. Had to turn the eye end up to see 15/200 well toward one side. Lids negative. Slight conjunctivitis. Extra-ocular muscles negative. Tension normal. Cornea clear. Pupil normal. Iris active to light. Lens clear. Vitreous clear. Retina, choroid and optic nerve show no pathology. He was then given very active syphilitic treatment of the heavy metallic salts and this was continued from the last of May through November. His health seemed to improve, but there was not the slightest improvement in his vision. I then said to his wife that I did not believe he had given me a true story of his case, that I believed that he was a very heavy smoker and drinker. The answer was, "Doctor, how did you find that out?"

Fields of vision were mapped out on the first day, and were made in intervals as shown in the figures. You will observe by the maps of the field of vision that his peripheral vision was good. It was the central vision where green and red looked white, and he had almost a complete central scotoma in each eye. At this stage, I sought the advice of Dr. Alan C. Woods, of the Johns Hopkins Hospital. He was kind enough to take this case under his care; to examine him, his wife, and child carefully for syphilis, and all the tests proved negative. He then sent him back to me and wrote a letter, which he has given me the permission to use in this report:

BALTIMORE, MARYLAND.
JANUARY 29, 1937.

DEAR DOCTOR DRIVER:

Mr. H. S. W. came to Baltimore last Monday. On his admission to the hospital he gave a history of gradual impairment of vision, beginning about fifteen months ago. In his previous history there was apparently nothing of any marked importance except the fact that he has been a heavy drinker all his life, and prior to the onset of his trouble he had been drinking heavily—taking nearly a quart of cheap whiskey a day. He had had various antisyphilitic treatment before he arrived in Baltimore.

Examination of his eyes showed them negative externally, with normal tension, pupillary reactions and extra-ocular movements. Ophthalmoscopic examination showed clear mediae. The discs were flat. In the right eye there was definite pallor of the nervehead, especially marked in the area of the papillo-macular bundle. Peripheral fundus was negative. The left eye presented a picture comparable to that in the right eye. Slit lamp examination was negative. His vision was limited to 5/200 in both eyes. The visual fields showed normal peripheral fields for white and color, but with an absolute central scotoma in each eye. In the right eye this was separated from the normal blind spot but in the left eye was continuous with the blind spot, with a small island paracentral vision.

The general physical examination was entirely negative, except for hyperactive reflexes. Examination of the teeth showed some pyorrhea and need of a little prophylactic treatment, but no evidence of periapical infection. The nose, throat, and accessory nasal sinuses were entirely negative throughout. Stereo picture of his head was entirely normal. Basal metabolic rate was normal. Blood chemistry was normal throughout. Blood pressure was normal. Hemocytology was normal throughout. Urine was negative. Blood Wassermann of wife was negative. Spinal fluid was entirely negative under 140 mm. pressure, with four cells, negative Pandy, mastic, and Wassermann reactions. Special neurological examination was entirely negative. Genito-urinary examination was negative and gonococcus complement fixation test was likewise negative.

In short, we have a man who has a history of gradual loss of vision, following excessive alcoholic intake, who has every evidence of a retrobulbar involvement of the nerves, with manifest atrophy now appearing affecting especially the papillo-macular bundle. In the right eye the scotoma is not typical, but in the left eye it has every characteristic of a toxic amblyopia. I felt there was little doubt as to the final diagnosis of a toxic amblyopia from alcohol or possibly tobacco. The question is as to what can be done. In acute cases of this condition, many favorable results have been reported by the intravenous use of nitroskleran. Whether or not it would have any beneficial effects in a case as far advanced as this I think is highly problematical, but in view of the recent work I think we might give him a course of nitroskleran and see that he receives a well-balanced diet with a high vitamin content. There is, unfortunately, nothing else that I can suggest. I think we can safely dismiss the possibility of syphilis or intracranial tumor. . . .

Very sincerely yours,

Signed: ALAN C. WOODS, M. D.

After having this suggestion, I ordered from E. Tosse & Company nitroskleran and began to use it. His sight did not improve at first, but after he had completed twenty-six doses, there began to be an improvement in the central vision, and when he was last seen the vision was 20/15 in each eye. The central scotoma for red and green had nearly disappeared.

Since nitroskleran is a proprietary compound, made by E. Tosse & Company, I think its composition should be stated here:

The composition of nitroskleran is 0.6 per cent of sodium chloride; 0.36 per cent of disodium phosphate; 0.2 per cent of di-potassium phosphate; and, 10 per cent of sodium nitrite.

But before this compound of nitroskleran was used, sodium nitrite was used, and likewise its composition should be stated:

It consists of a 2 to 4 per cent solution of sodium nitrite, to which physiologic solution of sodium chloride and alkaline phosphates are added, and further refined by Tosse & Company, and marketed as nitroskleran.

In alcoholic amblyopia characterized by a central scotoma, there was in this case no visible change that I could make out, and it is that form of amblyopia due to ethyl (grain) alcohol. In wood alcohol blindness there is right at once a very decided change in the appearance of the optic nerve. The whiteness takes on a bluish tint, very characteristic and permanent.

SUMMARY

1. Where there is no known specific for a disease which you are called on to treat, it should be treated empirically and due consideration had for the temperament and constitution of the patient.

2. When a mydriatic has been instilled in the eyes for an ophthalmoscopic examination, the person should not leave the office with dilated pupils unless it is a very young person; never after they have reached an age when there is a possibility of an unsuspected glaucoma simplex.

3. Negative serological tests are quite common in long-standing syphilis—some serologists say as much as 15 per cent; therefore, one should not be entirely satisfied even after several negative serological tests when there are signs and symptoms that cause him to suspect syphilis as the underlying factor.

4. Even when you have a positive serological test for syphilis, the manifest condition for which you are being consulted can be non-syphilitic in its nature. The papillo edema case here reported is a good example.

5. The physician visualizes thoroughly what has happened in a diabetic patient; but I doubt if many diabetic patients, after a thorough explanation of their case, have a clear conception and can quite understand why they should continue the rest of their life to use insulin. It is, therefore, necessary that the diabetic should be checked from time to time.

6. A complete history is most valuable. Many times, though, a part of the history is withheld, which would throw valuable light on the case. Night drinkers and indulgers in cologne and other alcoholic non-beverages are found in all walks of life. A physician has no right to be startled at a sclerotic liver, or an alcoholic toxic amblyopia.

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339 Boush Street.

CARE AND FEEDING OF THE NEWBORN AND THE PREMATURE FROM THE PEDIATRIC VIEWPOINT.*

JAMES B. STONE, M.D.,
Richmond, Virginia.

The word "newborn" is a term used to cover the first several weeks of the infant's life. Under present conditions of practice the infant frequently does not come under the care of the pediatrician until this period has passed. The obstetrician's chief concern is with the mother and so, during this important phase of the infant's life, he is apt to be given only secondary consideration. The pediatrician's chief interest is in the baby, and logically the baby should come under his care on the day of birth.

Although the high mortality of the first few days of the neonatal period probably has a direct relation to prenatal and natal conditions over which the pediatrician would have no control, nevertheless his efforts at this time should help much to reduce the postnatal factors contributory to this mortality.

For best cooperative results a pediatric appraisal of the baby should be made as soon as practicable after its birth. This appraisal should be based on a knowledge of prenatal and natal conditions as well as a thorough physical examination of the baby. Hereditary predisposition to certain ailments, or ill health of the mother during pregnancy as well as the circumstances of the actual delivery should be known and correlated with the physical examination.

NORMAL NEWBORN INFANTS

Assuming that the baby is normal at birth, three problems are to be met:

1. The strength and resources with which he is endowed must be conserved.

2. He must be protected from injury—mechanical or infectious.

3. He must be provided with nourishment on which he can live and grow.

In the conservation of his resources, the physiological adaptation to conditions of extra-uterine life must be kept in mind. While adjustments of the circulatory, respiratory and digestive systems are

*Read before the Clinical Meeting of the Virginia Pediatric Society at the Chamberlin Hotel, Old Point, Va., May 12, 1938.

being made, it is important that favorable environmental conditions be provided. The unstable heat regulating mechanism must also be kept in mind, and the baby not be subjected to wide changes in room temperature. The upper respiratory tract should be cleared of mucus and, in certain cases of depression of the respiratory center, inhalations of CO_2 and O mixture may be needed.

The newborn is especially susceptible to infections of the skin and respiratory tract, and where these infections occur they may be attended by severe symptoms or even a fatal termination. Consequently, all possible precautions should be taken to guard against contact with any one who might be actively suffering from any infectious condition or a carrier of same.

The third problem to be met is that of providing the infant with proper food. Breast milk is the feeding of choice, but unfortunately many mothers do not have it, and others who could are unwilling to nurse their babies. It would seem that the obstetrician during the prenatal period might with the proper effort exert considerable influence toward making the mother willing to nurse her baby if she should prove to be physiologically capable of doing so. The cultivation of emotional stability as well as willingness in the mother would no doubt make it possible for many more babies to be breast-fed than is now the case. Next to inadequate mammary gland structure, the nervous condition of the mother probably more than anything else affects the secretion of milk.

If the breast milk is inadequate, complemental bottle food in some cases will enable the mother to continue breast feeding. However, if the breast milk is not sufficient to meet at least half of the infant's needs it is doubtful whether the benefit to be gained is sufficient to justify the double feeding. The strain from nursing plus the work of preparing the bottle food is apt to have a bad effect on the mother.

In the absence of breast milk, artificial feeding must be given. The requirements of a satisfactory artificial food are: 1. It must have sufficient calories; 2. it must contain adequate amounts of fat, carbohydrate, protein, mineral salts and vitamins; 3. it must be free from harmful bacteria; 4. it must be digestible. Meeting these requirements, mixtures of boiled whole milk, evaporated milk, acid milk and powdered milks, as well as a number of synthetic milk preparations have all been successfully used.

A strong vigorous baby will do well on any reasonably well constituted formula meeting the above requirements. However, differences in individual babies call for adaptation of the formula to the specific baby's needs. The newborn's digestive tract can be easily upset by persistently feeding him on a formula that is not in keeping with his digestive capacity. Overfeeding during the early days of life may be tolerated for a time and cause a rapid gain in weight at first, but persistence in this is liable to lead to acute or chronic digestive disturbance and bring the baby to the pediatrician for correction of trouble that could have been avoided if his services had been enlisted sooner.

The chief objection to the ready prepared proprietary infant foods is their lack of flexibility, and consequently the inability to adapt them to the needs of the individual baby. My own preference for the feeding of full term newborn infants is a lactic acid milk and water mixture prepared from boiled whole milk or evaporated milk, with the addition of carbohydrate in suitable amounts. In all cases the individual baby's needs and digestive capacity rather than a theoretical number of calories must be the determining factor in prescribing a formula. For the newborn it is a safe practice to start on a feeding somewhat below the theoretical optimum until his tolerance is known and then increase it as his appetite and digestive capacity indicate.

For the first forty-eight hours while physiological adjustments are being made, the baby's requirements for food can be met with 5 per cent lactose solution given at the regular feeding times starting when six to eight hours old. During this period he should be put to the breast at every other feeding to stimulate lactation and, at the end of forty-eight hours if breast milk is not adequate, artificial food should be offered after nursings, or in place of nursings later if there is not sufficient breast milk to justify continued attempts at breast feeding.

PREMATURE INFANTS

The management and feeding of premature babies presents difficulties that call for special professional skill and meticulous nursing care. Strictly speaking, prematurity should apply to all infants born prior to term. However, it is not always possible to determine the exact date of conception so an arbitrary standard of five and one-half pounds weight or 18.5 inches length has been set, and any infant falling short of these figures is for practical purposes con-

sidered a premature baby. The need for special care and the chances of survival of such infants depends as much on the degree of immaturity as on prematurity. Hess speaks of this entire group of infants as "Immature" and classifies them as follows:

1. Prematures without pathological changes and normal for their fetal age.

2. Prematures with pathological changes related to conditions in the parents, or constitutional defects and congenital malformations.

3. Full term but immature infants with pathologic changes.

Whatever the cause of the prematurity all of these infants are at a disadvantage because of their underdevelopment. Their heat regulating mechanism is less well developed than that of the mature newborn. They have a lessened capacity for generating heat as well as for giving it off and consequently body temperature tends to vary sharply with fluctuations in environmental temperature. Likewise the respiratory center is poorly developed so that respiration is shallow, pronounced atelectasis frequent, and attacks of severe cyanosis common even in the absence of gross pathology. Because of the immature development of the digestive tract there is apt to be marked impairment of the digestive capacity. Besides these specific difficulties the premature is faced with the same problems, greatly magnified, that confront the full term infant, namely; the calling into play of new physiological functions, adjustment to life in a germ laden environment, and of being supplied with food on which he can live and grow.

GENERAL CARE OF THE PREMATURE

The mortality is especially high during the first twenty-four to forty-eight hours after birth. Much of this is due to the infant's vital structures being inadequately developed for the maintenance of extra-uterine existence. However, many of these infants can be saved if proper care is instituted. Prevention of chilling and avoidance of infection are of especial importance. It has been shown that the mortality of premature babies born at home and later having subnormal temperature on admission to the hospital is tremendously higher than that of babies born under similar conditions and having normal temperature on hospital admission. Every effort should be made to prevent chilling both initially and later. The smaller the infant the more important is this precaution. The measures to be taken will depend on the facilities at hand. Primarily the room should be kept warm (75-80) and free of drafts. Bathing with oil in place of water is important in the prevention of heat loss as well as in the maintenance of a healthy skin condition. Besides this, the small premature, particularly those under three and one-half pounds will need additional local heat. In the absence of an incubator a well padded bassinet, basket or box may be utilized and heat applied by means of an electric pad, electric light bulbs properly placed within or underneath the container, hot water bottles, or warmed blankets placed around the baby. Care should be taken not to apply so much heat as to cause elevation of his temperature above normal, and of course precautions need to be taken against burning him. The body temperature should be maintained between ninety-eight and 100 rectal. The temperature of the incubator or bassinet should be kept at eighty to ninety-eight degrees according to what is found necessary to maintain the baby's body temperature within normal limits.

This degree of heat in the room necessarily will cause great dryness and the latter needs to be corrected by some means of humidification. In the absence of any special equipment, moisture can be supplied by simply keeping a basin or kettle of water constantly boiling in the room. Maintaining adequate humidity is extremely important in caring for these infants as they will not do well in an overheated dry environment.

The small premature should be subjected to as little handling as possible, and all handling should be done with extreme gentleness. Intracranial hemorrhage or other serious injury may easily be brought on by careless manipulation. No attempt should be made to dress the smaller of these infants but they should be surrounded with absorbent cotton, with a gauze or cotton pad placed under the buttocks in place of the diaper. Blankets when used should be so placed as not to cause undue pressure on the baby, as any such weight would mean an extra burden.

Infections of all kinds should be scrupulously guarded against as these babies are poorly equipped to combat any such occurrence. Attacks of cyanosis are common in the first few days and, although these may be due to gross pathology or depression of the respiratory center, they may, in the small infants especially, be due to accumulation of mucus in the respiratory tract. From the throat it may be removed

by gentle aspiration using a small soft rubber catheter and syringe for suction. For removal of mucus from the larynx and trachea the infant should be held with the head down while the throat over these regions is gently stroked toward the mouth and suction applied to the pharynx as indicated above.

When there is shallow, feeble respiration, especially if associated with attacks of cyanosis, inhalations of 5 per cent CO_2 in oxygen should be administered after first seeing that the throat is clear of undue accumulation of mucus. This may need to be given intermittently for the first several days.

FEEDING THE PREMATURE

The difficulties encountered in feeding the premature depend partly on the degree of immaturity of his digestive tract and partly on his general lowered vitality. Nothing should be given by mouth for at least sixteen to twenty-four hours after birth, and then only water or 5 per cent lactose solution for the next twelve hours. Not more than one to three teaspoons, depending on the size of the baby, should be offered at first and this repeated every two hours until feedings are begun when the baby is twenty-four to forty-eight hours old. The exact time at which feedings are started, the quantities given and the intervals between feedings will vary according to the size and vitality of the infant. During the first several days especially the maintenance of body fluid is much more important than the giving of food, and this can often be done to better advantage at this period by saline hypodermoclyses than by endeavoring to give large quantities by mouth. It is often necessary to administer fluid subcutaneously daily or every other day for a period of weeks in order to prevent dehydration and loss of weight during this time.

In only the larger and more robust of these infants can the ordinary method of bottle feeding be utilized. Others will need to be fed with a medicine dropper, or Breck feeder which do not demand much effort on the part of the baby. To others in whom the muscles of deglutition are not well developed feedings will need to be given through a small catheter passed into the stomach.

The mechanical part of feeding is extremely important and the care with which the feedings are given often mean as much to the survival of the infant as the actual content of the formula. Food should be given slowly and the utmost care taken that it does not accumulate in the pharynx resulting in strangulation, aspiration and subsequently aspiration pneumonia. Also the stomach must not be over-loaded. Distention from overfeeding may cause severe cyanosis and serious respiratory embarrassment.

In determining the type and quantity of food to be given, the prime considerations are: 1. The theoretical food requirements; 2. The individual infant's digestive capacity.

The premature baby is born with a deficiency of mineral salts especially iron and calcium, and a low serum protein concentration, suggesting a certain degree of protein starvation. The tendency to develop anemia and rickets suggests the need for iron and antirachitic elements in the diet. A food of high caloric value and rich in protein, minerals and vitamins is indicated in order to meet the increased needs for growth. However, during the early weeks the small premature's basal metabolism is at a very low rate and the increased caloric requirement does not come until after this time. The maintenance of weight by adequate fluid administration in the early period of life is of chief importance. It is necessary to recognize the underdevelopment and impaired function of the organs of digestion and assimilation and to adapt the food to the individual infant's digestive capacity. Efforts to force gain at this time are apt to result in disaster. It is safer to start with the quantity of food that will meet the infant's minimal requirements and increase it gradually to the optimal point; otherwise a severe gastro-intestinal upset may be precipitated with vomiting or diarrhea and possibly a serious set back encountered. Later the caloric needs are much higher than for the full term infant and increases in food must be made accordingly.

In regard to the specific food to be given, breast milk is always preferred, but more often than otherwise is not available. In the absence of breast milk good results may be obtained by the use of the foods mentioned above for the full term newborn infant. During the early days small quantities of these foods are given, the quantity later being increased as rapidly as the infant will tolerate, to the point that will cause a steady gain in weight. The addition of calcium caseinate or protein milk to these formulas provides for the infant's increased protein needs,

supplies extra calories, and counteracts the tendency to loose stools at this age.

My own preference has been for an evaporated milk, lactic acid, water and dextrimaltose mixture, to which one to 2 per cent calcium caseinate is added after the first week or two. During the past year I have been especially pleased with the use of the new reconstructed powdered milk "Olac" in which part of the butterfat has been replaced by olive oil and the loss of Vitamin A made up by added halibut liver oil. The further addition of calcium caseinate as in the above preparations is of advantage.

After several weeks extra A and D vitamins are added as God Liver Oil or preferably one of the concentrates, and C vitamin as orange juice or cevitamic acid. Near the end of the first month, iron alone or with copper should be given to combat the tendency to anemia.

SUMMARY

In summary, the points to be stressed in the management of the premature infant are:

1. Skillful and meticulous nursing care, preferably by one accustomed to handling premature babies.

2. Good environmental conditions as to temperature and humidity, with additional heating of the bed, if needed to maintain the infant's temperature within a normal range.

3. Scrupulous protection from infection and trauma.

4. Adequate fluid administration, by parenteral route if necessary, especially in the early weeks of life.

5. Food adapted to the infant's capacity, and containing extra quantities of protein, vitamins, and minerals. This should be given in small frequent feedings at first and increased cautiously in keeping with the ability to utilize it.

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2042 Park Avenue.

MYXEDEMA.*

K. D. GRAVES, M.D.,
Roanoke, Virginia.

Myxedema is described by Boothby as being a constitutional disease occurring in adults, due to decrease or absence of the secretion of the thyroid as the result of its atrophy or removal. Recently considerable advancement has been made in the diagnosis of this condition, including such signs and symptoms as changes in the mucous membrances of the nose, heart enlargement and electrocardiographic changes, changes in the cholesterol metabolism, as well as the classical syndrome of either pitting or non-pitting edema and sluggish mentality with low basal metabolic rate. The term myxedema was first applied by Ord[1] in 1880. Ravin[2] points out that myxedema and hypothyroidism are synonymous terms and should not be used simply to imply hypometabolism. Table I is taken from his article.

When the basal metabolic rate falls below minus twenty, patients usually begin to show some symptoms of hypothyroidism—sensitivity to cold, dryness of skin and absence of sweating—but they do not develop the marked symptoms—swelling, mental retardation and cardiovascular changes — until the basal metabolic rate has been below minus thirty for some time.[3]

The term "myxedema heart" was first used by Zondek[4] in 1918. Ruhberg[5] states that every case of uncomplicated myxedema presents a mental state, the essential features of which are fatigability and psychomotor retardation.

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TABLE I
MYXEDEMA
SYMPTOMS AND FINDINGS

General
(1) Fatigue
(2) Weakness
(3) Inability to stand cold
(4) Weight increase
(5) Fat increase:
General
Supraclavicular

Skin
(1) Paleness
(2) Dryness and scaliness
(3) Absence of sweating
(4) Hair: Scanty
Coarse
(5) Nails brittle

Circulatory
(1) Shortness of breath
(2) Slow pulse
(3) Small pulse pressure
(4) Poor quality of heart sounds
(5) Dilatation of heart
(6) Electrocardiographic changes:
Low voltage, especially in T waves in Leads I and II

Edema
(1) Eyelids
(2) Face—cheeks
(3) Ankles:
Non-pitting
Pitting

Mental and Neurological
(1) Drowsiness
(2) Slow speech
(3) Numbness and tingling
(4) Impairment of memory
(5) Impairment of hearing
(6) Prolongation of tendon reflexes

Gastrointestinal
(1) Constipation
(2) Poor appetite
(3) Indigestion

Blood
(1) Increased cholesterol
(2) Moderate anemia

Lowered Basal Metabolic Rate

Other manifestations of myxedema have been particularly interesting to me. One is rhinitis. This is not specific, nor peculiar to this disease. It seems to have nothing to do with allergic sensitiveness. I believe it is because of a swelling of the whole body. While a swelling of a fraction of an inch on the body or extremities would scarcely be noted, even a very slight swelling of the nasal mucosa would obstruct breathing, leading to accumulations in the accessory sinuses with congestion.

Metrorrhagia occurs as a fairly frequent symptom in women before the menopause. This would suggest the fact, which has never been entirely proven, that there is a swelling and congestion of the uterine mucosa and probably a slight uterine enlargement.

Blood cholesterol is consistently elevated. It is not only important to estimate it before treatment but afterwards as well, in order to note the change under treatment. The cases with low basal metabolic rate and normal cholesterol are rarely benefited by thyroid medication.

Anemia:—The moderate degree of anemia in cases of myxedema is due to the general inactivity of the blood forming organs in common with the rest of the body. However, the pallor is out of all proportion to the blood count. It has been the experience of a good many workers that this anemia is not relieved by thyroid therapy alone but must be supplemented by iron.

The urine often shows a trace of albumin and is often of diagnostic importance since many of these cases are classified as nephritics.

Cases of myxedema almost invariably show changes in the electrocardiogram.[6] Flattening or inversion of the T wave in Lead two is probably the most characteristic change, but low voltage of all complexes and flattening of the T wave in other leads is also very frequent.

Treatment. Myxedema is one of the conditions which the physician can treat, confident of his ability to help the patient. Desiccated thyroid gland, because of its dependability and cheapness, is the form most generally employed; and I have been impressed in going over recent literature on the subject, that the tendency is toward the use of small doses. It is probably best to start the patient on about two grains daily, regulating the dose according to individual requirements after about ten days. Conklin[7] states that the patient must be warned that all untoward symptoms are apt to recur if treatment is stopped and that he must continue it for years if not for life.

The diagnosis of myxedema is often missed. In a series of forty-three cases reported by Means and Lerman,[8] the patients had had it for from one to fifteen years.

I wish to report an illustrative case. Mr. J. W. was admitted to the Lewis Gale Hospital in the fall of 1937 because of a crushing injury to his leg resulting in infection. His leg was amputated, with a

resulting cellulitis of the stump and osteomyelitis of the end of the tibia. He cleared up promptly under sulfanilamide and was discharged March 7, 1938. At that time he showed no evidence of myxedema. Later, he was readmitted to the hospital complaining of swelling of his whole body. We naturally suspected that this was the result of the use of sulfanilamide. Examination showed the presence of a puffy non-pitting edema involving the whole body. The urine showed a trace of albumin; the kidney function test was normal; blood creatinin, chlorides, plasma protein, calcium nitrogen and urea were within normal limits. Basal metabolic rate was minus twenty-three. Cholesterol and sugar were not estimated. His temperature was subnormal, pulse from sixty to seventy. After one week of thyroid treatment he began to show remarkable improvement and has since remained entirely well on thyroid medication.

This brings me to the final thought which I wish to leave—that myxedema is not a rare disease and if we seek it we will find it among our cardiac, nephritic and general debility cases.

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THE VALUE OF THE PERIODICAL HEALTH EXAMINATION.*

REUBEN F. SIMMS, M.D.,
Richmond, Virginia.

The periodical health examination's aim is primarily to preserve health through advice related to the various activities of the individual, and, secondarily, to the discovery of diseases—particularly the degenerative diseases—and their correction, if possible. The education of the laity as to the necessity of such an examination and the profession as to the importance has been very slow.

From man's supposed beginnings in Mesopotamia and his progress in Egypt to that period that was the glory of Greece and the grandeur of Rome, through the dark ages of the Renaissance and onward to the last of the eighteenth century, little progress was made in his advancement. His travel was limited to the speed of boat or horse; his food was grown or found in the forest near his home; his clothes were home-spun; disease swept his location and in many cases he had only superstitions with which to fight back. Man was hemmed in by the writings of the great who had gone before; by political and religious taboos; by his own fear of knowing the truth.

It is true that during this long period of slow progress a few wise and courageous individuals made great contributions to the knowledge of man in all fields, and there was no exception in medicine. From the earliest time, medicine and its practice has had three great objectives—palliation, curing, and prevention of disease. Since it is the last in which we are primarily interested at that particular time, it will not be amiss to see what, if anything, had been accomplished in this field before the nineteenth century began. Preventive medicine in the present conception is fairly modern, but in ancient times they had some ideas about preventive medicine. In the Old Testament, especially the books of Leviticus and Deuteronomy, were well defined rules and regulations for caring for certain conditions—in the quarantine of skin diseases under the term "leprosy"; isolation of venereal diseases; regulation of sex, diet, and camp and personal hygiene.

The Greeks had a working knowledge of the importance of preserving human life; and it is of in-

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From the Health Clinic of the out-patient department of the Medical College of Virginia.

terest that Hippocrates said "I will give nothing whatever destructive, and deeming it the special province of medicine to guard and preserve what nature generates." During the tenth century, Israeli in North Africa wrote—"The chief task of the physician is to prevent disease."

Preventive medicine may be dated from 1716-1794, when James Lind, of England, found that lemon juice prevented scurvy, and Edward Jenner's discovery of smallpox vaccine in 1796. To Dr. Horace Dobell, 1861, of England, and Dr. Gould, of Philadelphia, of this country, must go credit for bringing before the profession and the laity the importance of the periodical health examination. Dr. Dobell, writing in England, said—"I want to propose that there should be instituted, as a custom, a system of periodical examinations, to which all persons should submit themselves, and to which they should submit their children. If such a plan were to be faithfully and consciously carried out by the present and rising generation of well-educated studious medical men, I think no one can doubt, after a careful consideration of the subject, that immense benefits would be conferred upon the public." This work was greatly stimulated during the late world war when out of two and a half million men examined, it was found necessary to reject 38 per cent as unfit for military service. In 1922 the American Medical Association recognized the importance of the periodical health examination and had printed a "Manual of Suggestions for the Conducting of Periodical Examinations of Apparently Healthy Persons." The insurance companies very early saw the importance of a periodical examination of their policy holders and began to have such examinations made. One company found that they received from six to seven more annual insurance premiums from those examined than from those not examined. For every dollar invested in this work they received in added premiums six dollars.

All surveys of supposed healthy groups of individuals have shown that a high percentage of them will be found suffering from one or more diseases or complaints that can be cured or at least helped. The results of the draft have already been shown. In 1925, Dobbin, Fisk and Kopt, from their survey of 16,000 white males, concluded—"It is entirely credible that the facts shown from this group of more than 16,000 males are indicative of conditions in the general population of white males. If so, it is clear that a wider extension of periodical health examinations among the adult population is indicated. Hygienic advice and the prompt treatment of both major and minor defects thus discovered may lead to the prevention of serious consequences to those individuals later on. Most of the defects and impairments discovered in the younger ages of adult life are subject to effective control."

The present survey of 500 unselected patients from the files of the out-patient department of the Medical College of Virginia who had been examined in the Health Clinic was begun with the idea of determining what percentage of these people showed pathological conditions. These patients did not come to the clinic complaining of some disease, but in the majority of cases, were brought in by a case worker from the Citizen's Service Exchange which demanded that all of its associated members be examined; also a number of people who sent their nurses and maids in for check-up examination; W. P. A. workers who were sent in for classification as to their physical ability to do manual labor. The age distribution of these patients was such as to give us a fair cross-section of almost any 500 patients that we could select in the same stations of life. There were no patients below twelve years of age as a ruling in the clinic sent these patients to the pediatrics department. For that reason, our survey is one of early adolescence and adult life with a few patients in advanced years. In Table 1, we have a chart that shows the age distribution as well as sex and color, the 500 patients being divided as follows: 166 white males, 145 white females, ninety-nine negro males and ninety negro females. The youngest was twelve years of age and the oldest seventy-eight years of age.

TABLE 1.—AGE DISTRIBUTION OF THE 500 PATIENTS.

	0–20	21–30	31–40	41–50	51–60	61–70	71–80	Total
White male	49	41	21	27	17	7	4	166
White female	53	25	15	34	13	1	4	145
Negro male	42	16	9	18	10	3	1	99
Negro female	25	22	18	11	10	4	0	90

A complete history and physical examination was done on all of these patients. Pelvic examinations were done on all married women and on single women when physical findings or history indicated.

Rectal examinations were done on all patients. There was a certain minimum amount of laboratory work done, a routine Wassermann or Kahn, urinalysis, a sedimentation rate of the erythrocytes, wet smears from prostatic fluid, and blood work when indicated. If chest findings indicated, these patients were fluoroscoped. When the patients' examination had been completed and if pathological changes were noted, the patient was referred to the proper department in the clinic for further observation and treatment. So far as possible, they were given the proper hygienic advice in the health clinic on their first visit.

In this group of 500 patients, there were made a total of 1,739 diagnoses or an average of 3.8 diagnoses per patient. Only twenty-five people, or 5 per cent passed through the clinic without a diagnosis of some description. In the greater majority of patients, the findings could be classified as minor. Incidentally these findings were the easiest to correct. Figure one shows in graphic form the number of patients, the number with no diagnosis and the total number of separate diagnoses.

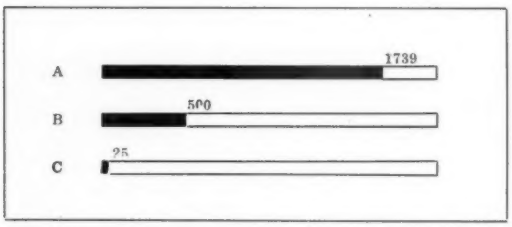

Fig. 1.—A.—Total Number Diagnoses. B.—Number of Patients Examined. C.—No Physical Findings.

Table 2 gives the number of diagnoses in each age group, the sex and color of each group. In the white males, we had the lowest number of diagnoses per individual—2.88, with the white females next with 3.54. The negro males had 3.7 and the highest average was found in the negro female with 4.3 per person.

TABLE 2.—NUMBER OF DIAGNOSES IN THE DIFFERENT AGE GROUPS.

	0–20	21–30	31–40	41–50	51–60	61–70	71–80	Total	Number Per Patient
White male...	105	105	61	90	73	30	13	480	2.88
White female.	101	88	49	161	75	8	32	514	3.54
Negro male...	95	46	36	89	65	17	9	357	3.7
Negro female.	78	87	96	57	57	13	0	388	4.3

Table 3 gives the named diagnosis made at the first visit to the clinic and the number of times each diagnosis was made. Teeth in need of some dental repair led with 378 of the total 500 patients. Corns came next with 167, followed by diseased tonsils 120, pyorrhea 112, hypertension ninety-six, visual disturbances ninety-five, defective hearing seventy-two, malnourishment and flat feet with sixty-two each, chronic myocarditis fifty-two, syphilis forty-three, pelvic inflammation thirty-nine, etc. In all, sixty-seven different diagnoses were made. Many of these patients could have been taken care of by having only a small amount of necessary work done for them; in others the diagnosis showed advanced degenerative diseases that had progressed to the point of almost a hopeless prognosis.

TABLE 3.—DIAGNOSES MADE AND THE NUMBER OF TIMES FOUND.

Teeth	378	Catarrhs	5
Corns	167	Lordosis	4
Diseased Tonsils	120	Sebaceous Cyst	4
Pyorrhea	112	Pharyngitis	4
Hypertension	96	Nephritis	4
Visual Disturbance	95	Breast Tumors	4
Defective Hearing	72	Acne	4
Malnourishment	62	Anemia	3
Flat Feet	62	Asthma	3
Chronic Myocarditis	52	Athletic Feet	3
Syphilis	43	Pregnancy	2
Pelvic Inflammation	39	Psychosis	2
Arteriosclerosis	37	Phymosis	2
Cervical Erosion	33	Ingrowing Toe Nail	2
Obesity	28	Diabetis	2
Chronic Prostate	23	Tuberculosis	2
Bronchitis	20	Cervical Polyp	2
Hypertrophied Glands	20	Lipoma	1
Hernia (all types)	20	Jaundice	1
Hypotension	21	Chronic Gall-Bladder	1
Rectocele	20	Eczema	1
Cystocele	17	Muscular Atrophy	1
Coryza	18	Rectal Fistula	1
Vaginitis (non-specific)	16	Exostosis (ankle)	1
Systolic Murmur	16	Dislocation of Hip	1
Chronic Arthritis	15	Sinus Arrhythmia	1
Scoliosis	15	Urethral Carbuncle	1
Gonorrhea	14	Varicocele	1
Retroversion	13	Hydrocele	1
Simple Thyroid	11	Hay Fever	1
Varicose Veins	8	Kyphosis	1
Pelvic Tumor	5	Emphysema	1
		Spastic Paralysis	1

It was thought that a study of the comparative nutritional state of the white and negro would be of interest. Table 4 is of interest in that it reveals a better state of nutrition of the negro than the white in this particular group of patients. Two per cent of the white males and 10.6 per cent of white females

were over-weight, whereas they showed a 22.2 per cent and 21.8 per cent of under-weight respectively. On the other hand, the negro males showed 9.3 per cent over-weight and the negro females were 15.9 per cent over-weight, but showed only 10.6 per cent and 15.9 per cent under-weight respectively. It is possible that the better state of nutrition might be explained on the basis of the fact that many of the negroes were servants in white homes.

TABLE 4.—OVER AND UNDER WEIGHT CHART.

	Number Patients	Over Weight				Under Weight			
		10–20%	20–30%	30% and Over	Total Percent	10–20%	20–30%	30% and Over	Total Percent
White male...	139	3	0	0	2	9	10	2	22.2
White female.	94	5	4	1	10.6	3	8	0	21.8
Negro male...	75	4	3	0	9.3	5	2	1	10.6
Negro female	69	1	1	9	15.9	4	4	3	15.9
Total.....	377	13	8	10	8.5	31	24	6	16.2

The blood pressure readings of this group of patients were as one would expect, for the negro showed a slightly smaller percentage of hypotension and a larger percentage of hypertension. In this group, Table 5, we find the white male to have 7.2 per cent

TABLE 5.—BLOOD PRESSURE READINGS.

	Number Patients	Normal Blood Pressure	Hypotension			Hypertension			
			15–25	25 or More	%	20–40	40–60	60 or More	%
White male...	166	132	11	1	7.2	17	3	2	13.3
White female.	145	101	17	5	14.9	13	5	4	14.9
Negro male...	99	72	8	0	8	11	4	4	20.1
Negro female.	90	56	5	1	6.6	13	10	5	31
Total.....	500	361	41	7	9.6	54	22	15	18.5

hypotension and the white female 14.9 per cent hypotension. The white male had 13.3 per cent hypertension and the white female a slightly higher percentage in 14.9 per cent. The negro male had 8 per cent and the negro female 6.6 per cent hypotension, but the negro male showed 20.1 per cent hypertension and the negro female showed a 31 per cent hypertension. The whole group of white and negro patients had 9.6 per cent hypotension and 18.5 per cent hypertension.

Since this was a health survey, it was thought that a study of the number of patients who had been vaccinated for smallpox and typhoid and immunized against diphtheria would be of interest. It was quite a surprise to find that 23.5 per cent of the total group had not been vaccinated for smallpox. This figure is broken up as follows: white male 20 per cent, white female 21.5 per cent, negro male 20 per cent and negro female 33.3 per cent. These percentages appear to be rather high in light of the amount of educational work that has been done on smallpox for so many years. Typhoid fever showed a 77.5 per cent and diphtheria 83.5 per cent who had not been protected by immunization. These figures are shown in Table 6.

TABLE 6.—NUMBER IMMUNIZED AGAINST SMALLPOX, TYPHOID AND DIPHTHERIA.

	Number Patients	Smallpox			Typhoid			Diphtheria		
		Vaccinated	Not Vaccinated	% Not Vaccinated	Vaccinated	Not Vaccinated	% Not Vaccinated	Immunized	Not Immunized	% Not Immunized
White male...	166	133	34	20	58	108	65	30	136	82
White female..	145	111	31	21.5	23	122	84	15	130	90
Negro male...	99	78	21	20	21	78	78.8	20	79	78.8
Negro female..	90	60	30	33.3	10	80	87.8	19	71	78.8
Total..	500	382	118	23.5	169	331	77.5	84	416	83.5

COMMENT

To date, the prevailing conception of the doctor is at the bedside of the sick. In the periodical health examination movement, it will be as the guardian of health, rather than as a caretaker of the sick. Co-operation between the doctor and patient will add many years to the individual's life—years lived in comfort and well being. His regular examination will give happiness to self and dependents.

Much progress has been made in the control of disease as the downward trend in the death rate indicates, a decrease from 18 per thousand in 1900

to 11 per thousand in 1935. It must be remembered that this saving is primarily in childhood and that this leaves a greater percentage to reach the age when degenerative diseases take their toll. Cancer has jumped from 63 per hundred thousand in 1900 to 108 per hundred thousand in 1935; diabetes, heart disease and kidney diseases have shown an increase. This is a challenge to us—a challenge that can be met, in part at least, by the systematic checking up of our patients. While making these checks, it must always be borne in mind that the individual patient is far more important than any physical ailment that he might possess, and for this reason, as we give him advice as to how to take care of his disease or hygienic maladjustment, we do not make a mental or physical invalid of him by over-stressing our findings.

The periodical health examination, it seems to the writer, is a wonderful place for a general practitioner, who is in a vulnerable position, to study that least understood part of medicine, the beginning of disease and the effect of early treatment. The following of a series of patients through the years would add much to the sum total of our knowledge of this most important problem.

CONCLUSION

From the study conducted on this group of patients, it is quite apparent that many who think themselves free of disease and in good physical condition, are in reality in need of medical care. When only 5 per cent of a group of 500 patients are found free of disease, it seems that the time has come for a campaign to publicize the importance of systematic health examinations. The majority of the physical findings were of a minor nature, but a large enough percentage showed major defects in this group to justify us recommending the periodical health examination to our patients.

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DISCUSSION

DR. FRED J. WAMPLER, Richmond: Dr. Simms is to be thanked for bringing to our attention this work on Five Hundred Health Clients.

The pediatrician and the obstetrician years ago learned the importance of physical check-ups on presumably well children and normally pregnant women. The great improvement in the death rate among infants and the great saving of mother's lives, of women who get this service of well-qualified pediatricians and obstetricians is proof enough of the value of their forethought. When the general practitioner of medicine begins fully to use this method of caring for his regular patients, we not only should see a prolonging of life in the upper age group, but a much happier and wholesome adult life.

In the short time at my disposal in discussing this paper, it is impossible to cover all the points that might be covered. I want to stress one point that Dr. Simms did not mention. The health examination is of great comfort to many people receiving the examination, because the average person has some mental reservations about his own well-being. When his physician, after careful and thorough examination, tells him that, in his mind, he is in excellent shape or in good shape, with the exception of several defects that might be corrected, this cannot but make a satisfactory impression on the mind of the one examined. Many people have little worries about their own mental reactions and adjustments. The health examiner can be of great comfort to this group or to this class of persons.

I should also like to call the attention of this group to the fact that a wide-awake examiner will pick up most abnormalities in reasonably early stages without the more expensive laboratory techniques. With the Wassermann test, with the urinalysis, with the red cell sedimentation rate, with the blood counts and other blood tests as indicated, with the blood pressure and a complete physical check on the entire body, most defects will be discovered. X-rays and other more expensive laboratory tests can be left to clear up points where there is really suspicion that pathology exists. By using this plan in the health examination, it will not be made unnecessarily expensive, and, therefore, will be more extensively used.

THE RESPONSIBILITY OF THE GENERAL PRACTITIONER IN THE PREVENTION OF MORTALITY IN ACUTE ABDOMINAL CONDITIONS.*

H. W. SMELTZER, M.D.,
Abingdon, Virginia.

In the past six months I have had seven cases of acute abdominal conditions admitted to the hospital. They were as follows: one case of intestinal obstruction, two of strangulated hernia, four of ruptured appendix. Two died without operation, one died following operation, four recovered following operation. This is a mortality of over 40 per cent. I think this experience alone justifies my paper today.

Back in the horse and huggy days when the roads were bad, the hospitals few, and the doctor travelled at the rate of about four miles per hour, there was some reasonable excuse to justify delay in getting a patient to the surgeon promptly for emergency operation, but with good roads and modern fast automobiles, and with laboratory and hospital facilities accessible to most every community, a better service to this group of patients should result in the saving of many lives.

In speaking of acute abdominal conditions I refer to such diseases and conditions as appendicitis, strangulated hernia, intussusception, diverticulitis, perforation of the bowel, intestinal obstruction, peritonitis, and many other conditions occurring in the abdomen, whose treatment is essentially surgical.

It is not the purpose of this paper to discuss the causes, symptomatology and treatment of abdominal conditions, but to stress the fact that the mortality in these cases due to delay in hospitalization is still much higher than it should be. In most instances it is the general practitioner who sees these patients first and has them under his control. Here the matter of diagnosis is most important and often may be difficult. The symptoms may, or may not, be severe, and the matter of close observation and proper management for the next few hours may determine whether or not the patient will live or die. A few recent cases in my practice will illustrate how serious delay of operation may be.

Case 1. Married man, age thirty-eight years, weight 170 pounds, previous health good. This patient came walking into my office about noon. He was stooped and his expression was one of extreme suffering. He had pain and tenderness in lower right quadrant, rigidity of right rectus muscle, pulse rate increased and temperature 103 degrees. The pain had begun on previous day. After explaining to him the necessity for immediate hospitalization, I gave him a hypodermic of morphine, and he agreed to meet me at the hospital immediately after returning home. He failed to arrive at the hospital that afternoon. Not liking the idea of an operation, and having received temporary relief from the hypodermic, he sought medical aid elsewhere. About thirty hours later he was brought to my office, and taken on to the hospital, where he died without operation from ruptured appendix and peritonitis. I think that the pain-relieving and mentally-soothing effect of the morphine was an important factor in causing this man to delay the only procedure that offered him any hope of recovery.

Case 2. Farmer, age thirty-seven years, weight 140 pounds. Always well and active previous to present illness. He ate some cherries on Sunday, suffering slight abdominal pain that night. He worked Monday and Tuesday, still suffering pain and increasing tenderness. I was called on Wednesday morning. He did not appear to be very sick, but had had some pain and vomiting the past few hours. Examination revealed some tightness of the muscles across the lower abdomen, and definite tenderness and pain localizing about one inch to the left of the umbilicus. As this man had no increase of pulse rate or elevation of temperature I felt justified in ordering a low enema and one-sixth of grain of morphine hypodermically, keeping him under observation the next few hours. I saw this patient again in the late afternoon of the same day. The picture had changed. His temperature was 103 degrees., pulse rate increased, with continued vomiting and pain. He was immediately taken to the hospital where he underwent operation that night. Operation chart read as follows: "Diagnosis acute gangrenous perforative appendicitis with generalized peritonitis. The distal portion was tightly tied down in center of abdomen. The pelvis contained a large amount of

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

thick, foul smelling pus." While it is hard to understand why this man delayed calling medical aid for several days, it is likely that he and other members of the family were misled on account of the pain being on the left side of the abdomen. A further error in the handling of this case was the failure of the physician to make a more prompt diagnosis after he was called, thereby delaying the operation several hours. Due to the benefits of modern surgery this man made a slow recovery.

Case 3. A few months ago I was called to see an elderly lady suffering with acute abdominal pain and vomiting. The onset of symptoms had occurred several hours before. On examination I found an oblong mass about one and one-half inches in length, located two inches below the umbilicus. This tumor was firm and could not be reduced by pressure or manipulation. Diagnosis of strangulated abdominal hernia was made, and the patient and her folks were advised that she should be taken to the hospital immediately for emergency operation. She was given a hypodermic of morphine to control her vomiting and pain. The family waited to communicate with her relatives in another state, and did not get her to the hospital until the next morning. She was received at the hospital in a moribund condition, and returned home dead the same day. Delay in this case was tragic, because early operation in this condition is practically always successful.

These are a few of the numerous cases in my practice that have resulted in loss of life, or near loss of life, owing to delay in getting them to the hospital where surgery is available. It occurs to me that unless my experience has been different from that of other physicians in the territory represented by this Society there is still an appalling mortality due to unnecessary delay in hospitalization of those with acute abdominal conditions. The New York Life Insurance Company reports that in the death of every thousand policy-holders in that Company during the year of 1937 fifteen deaths were due to appendicitis. These, for the most part, were preventable deaths.

What are some of the factors that cause delay in the hospitalization of these surgical cases? Delay in seeking medical advice perhaps comes at the top of the list. There is a tendency on the part of many to make their own diagnosis. Very often they erroneously attribute their pain to some indiscretion in eating, indigestion, worms, gas colic, etc., and resort to self-medication by taking large and repeated doses of salts, castor oil, various liniments and pain tablets, thereby paving the way for disaster.

Another factor is the disinclination of many to go to the hospital, or outright refusal of operation. This is particularly true of certain religious sects, and also the over-optimistic type who will try grandmother remedies for several days before reluctantly admitting that their medicines and ministrations have failed. In one of my cases the father had given worm medicines for three days to his ten-year-old son who had appendicitis, the boy growing worse all the time. Finally the father decided that what this boy needed was a strong dose of "liver" medicine. I asked him if he had had a physician. He said "no," but he had no objections to my going and looking the boy over. He was dying when I reached his bedside, and the parents, strangely, never appeared to realize the normity of their blunder.

When the general practitioner is finally called to see these cases, from that time on the responsibility is squarely on him. Often he is faced with an emergency of the gravest kind, when he is least expecting it, and poorly prepared to deal with it. The diagnosis is not always easy, especially if the patient lives in a remote section where laboratory and X-ray facilities are not available, and where the physician has not the opportunity to have the patient under constant observation. If in doubt, the physician should either take the patient to the hospital for further study of the case, or request consultation. When diagnosis of a surgical condition is made at the bedside, it may require extraordinary powers of eloquence and persistent efforts to gain consent of the patient to go to the hospital. But here we must remember that procrastination is the thief of time, and delay has resulted in many deaths.

There are few of us who have practiced medicine over a period of years who do not have sad memories of unnecessary deaths resulting from tragic delays in getting patients to operating table in time for surgery to be effective. If it is the duty of the medical profession to relieve suffering and pain and to save life whenever possible, I feel that in the group of cases we have been discussing we have failed as yet to realize our full possibilities, and I wish to state that a more serious and alert attitude, if possible, on the part of the general practitioner in making it possible for them to reach the surgeon earlier will bring a further reduction in the mortality due to acute abdominal conditions.

THE SIGNIFICANCE AND MANAGEMENT OF ANKLE EDEMA.*

WELLFORD C. REED, M.D.,
Richmond, Virginia.

In order to determine the significance of abnormal accumulations of fluids in the tissues, one must first have some knowledge of the pathogenesis of edema. For fluid to occur in unusual amounts there has to be some disturbance of the normal equilibria which exist between the tissue fluids and the blood or between the tissue fluids and the cells and the lymph. We will consider first the capillary walls. Water, crystalloids and dissolved gases readily pass through normal capillary walls but, with the exception of the liver and intestinal mucosa, the capillaries are impermeable to colloids. When capillaries are injured the normal equilibrium is upset and colloids in the form of plasma proteins pass into the tissues. If an abnormal amount of protein is found in the edema fluid, it can be assumed that there has been some change in the permeability of the capillary wall. A second factor in the production of edema is the increased hydrostatic pressure in the capillaries. If this pressure is increased above the colloid osmotic pressure of the blood, a transudation of fluid into the tissues occurs. This helps to explain partly the edema secondary to elevated venous pressure as in heart disease or local disturbances of venous circulation as occur in varicose veins. The next important condition incidental to edema formation is found when the colloid osmotic pressure of the blood is low, either through loss of proteins in the urine or inadequate consumption of proteins in the diet. The greater part of the osmotic pressure is exerted by the albumen fraction and when this falls below 2.5 per cent, or approximately one-half its normal serum value, edema develops. Once the tendency to edema formation is present an excessive amount of sodium available in the organism will cause the greater part of the ingested water to be retained as edema fluid. It is not the chloride of salt which holds the water but the sodium, because potassium chloride does not produce water retention.

Of course, not one of these factors mentioned can be said to work alone. There may be a capillary hypertension complicating an injury to the capillaries and this might be aggravated by excessive salt intake. A condition such as this might occur in acute glomerular nephritis.

Edema, in the mind of the laity, is often linked with kidney pathology, but it does not confine itself to such narrow limits and may be due to a variety of causes. In most instances swelling of the ankles is not an early sign of trouble, but it may be the first thing that brings the patient to the physician. A hidden edema may be present for some time before the ankles are affected. The process may be local with unilateral or bilateral accumulation of fluid in the ankle tissue because of the dependency of that portion of the body. On the other hand, there may be a combination of the two, a general edema with local lymphatic or circulatory changes, which aggravate the first condition; varicose veins are frequently found complicating edema from cardiac failure, and the swelling becomes greater on the side with more venous pathology. Of the local conditions, the physiological swelling which occurs in normal people who spend some time in the standing position is probably the most common. This usually occurs in individuals who are overweight and is most pronounced at night and disappears after bed rest overnight. Local pitting edema is seen occasionally following sunburn and is due chiefly to injury of the capillaries in the area involved. Probably the most common local disturbance which causes ankle swelling is varicose veins. As a rule varicosities occur in the older group of individuals and other causes of edema must be ruled out because a cardiac, renal or nutritional edema may be superimposed. A phlebitis in the acute stages may cause swelling or the swelling may persist or recur some years after, due to the permanent damage to the veins and lymph channels. A venous thrombosis extending upward to obstruct the inferior vena cava may result in a massive edema from the abdomen downward, involving both limbs.

A massive bilateral edema in most instances is due to heart failure, the primary causes being hypertension, coronary disease, valvular heart disease and *cor pulmonale* incident to lung pathology, a right-sided failure. Failure of the right heart alone is rare, but when edema is present with a palpable liver,

*Read before the Southside Virginia Medical Association at its meeting at Piedmont Sanatorium, Burkeville, September 13, 1938.

distended neck veins with the patient in the sitting position, absence of dyspnea and orthopnea, this condition must be suspected. If an electrocardiograph machine is available, the finding of right axis deviation may afford additional evidence, in the absence of rheumatic or congenital heart disease. Another condition which gives similar findings, including ankle edema, is chronic constrictive pericarditis. Here ascites is prominent and the spleen and liver may be palpable. The heart is fixed and usually but not always small. The elevated venous pressure is striking and the finding of a calcified pericardium by X-ray, plus electrocardiographic changes consisting of low voltage and flat or inverted T-waves in all leads, is usually conclusive evidence. In coronary disease there should be a history of anginal attacks, a coronary thrombosis or progressive breathlessness preceding the ankle edema. Hypertensive cases may have a mild swelling of the ankles without heart failure, due simply to increased hydrostatic pressure or may in later stages, when the heart has failed, present a massive ankle edema. There may be, and frequently is, an associated coronary disease. Valvular heart disease is usually rheumatic in origin. Edema may occur during an attack of acute rheumatic fever where the heart is extensively involved or after a long mechanical strain from valve defects. Rarely, edema of the ankles follows heart failure from congenital valve defects.

There are three other conditions where the ankle edema may or may not be due to heart failure, myxedema, thyrotoxicosis and nutritional edema. The heart is enlarged in myxedema, but the edema usually is not due to heart failure and follows the disturbance in metabolism. If edema occurs in thyrotoxicosis, it is probably due to heart failure and auricular fibrillation is a prominent feature. These cases are probably associated with some coronary disease. In nutritional edema there is a history of an inadequate diet, especially in proteins and the serum protein value is low. The heart is not involved unless there is a vitamin B deficiency and if this is the case edema may be due to heart failure from the so-called beri-beri heart.

Nephrosis and acute and chronic nephritis are well known causes of edema. Nephrotic edema contains little protein and is due to excessive loss of protein in the urine in the form of albumen; this is the most outstanding part of the picture; hypertension is usually absent. Nephritic edema is high in protein content because of diffuse capillary damage and is distinguished in the acute stages by the constant finding of blood in the urine and in chronic forms by the appearance of a hypertension. Edema of the eyelids occurs with nephritis but is rarely seen in heart failure.

There is a less important group, because of their rarity, consisting of certain types of familial edema of an angioneurotic type, edema following ingestion of certain drugs, poison and snake venom, following secondary or pernicious anemia, Hodgkin's disease and leukemia, convalescence from long illnesses with stasis in lymph channels, Milroy's disease (a familial malady which causes an edema with less swelling around the joint, giving a link-sausage effect) and finally the terminal ankle edema following carcinoma, sarcoma, tuberculosis and cachectic states. Cirrhosis of the liver sometimes causes ankle swelling but usually after repeated abdominal taps with depletion of the serum proteins. Insulin may produce edema either by retained water incidental to carbohydrate storage, by setting free alkali, by producing shock or by changes in the colloids due to metabolic adjustments.

Edema of the ankles does not require emergency measures of therapy, but successful management depends on a proper diagnosis and carefully planned treatment. When the edema is due to heart failure from any cause, it is best to get rid of the excessive fluid first and release some of the extra burden on the heart; digitalization can be started later. The best method of releasing the fluid is by diuresis, and the best diuretics to use are the mercurials, either Salyrgan or Mercupurin and these work better after acidosis has been produced with ammonium chloride, in doses of three grams a day. The mercurials should be given intravenously, 2 c.c. every other day for two or three doses, or more, according to the response. Fliuds should be restricted and salt not added to food after it leaves the kitchen. Chronic cases responded to the xanthin diuretics occasionally and these should be given with intervals of rest because they lose their effectiveness after ten days to two weeks. Occasionally Southey tubes or simple punctures around the ankle may relieve obstinate cases which fail to respond to more conservative measures. These procedures should be done under sterile precautions. Diuretics are also helpful in edema due to constrictive pericarditis and cirrhosis of the liver. The treatment of choice for *concretia*

cordis is pericardial resection. Myxedema responds best to a diet adequate in proteins plus thyroid extract, one grain, daily. Nutritional edema is treated by a high vitamin, high protein diet and is occasionally benefited by blood transfusion. The edema of acute nephritis usually disappears with proper management of the disease. Fluids should be limited to 500 or 600 c.c. of fruit juices daily for three days. Proteins can be started after a week and salt should be restricted. Nephrosis and chronic nephritis should be treated with a high protein intake; sodium salts and fluids restricted. (A high protein diet is contraindicated when the kidneys do not concentrate well or where nitrogen retention is marked as shown by elevation of the non-protein nitrogen level of the plasma.) Diuretics are seldom necessary and may be dangerous, although Salyrgan and Mercupurin have been used in both nephritis and nephrosis. In acute nephritis or in any case where oliguria develops, fluids should be forced to 2-3,000 c.c. daily. Occasionally chronic nephrosis is associated with a low basal metabolic rate and thyroid therapy is helpful. Large doses are well tolerated whereas in true myxedema the effectual dose is usually very small. The edema following anemia usually responds well when iron therapy is used for secondary anemia and intramuscular liver extract for pernicious anemia. The best compound of iron to use is ferrous sulphate in doses of one gram daily. Phlebitis in the acute stages needs no special treatment but the leg should be put to complete rest and not massaged. If edema persists when the patient becomes ambulatory, an elastic bandage should be used. Varicose veins may be treated conservatively by strapping with bandage. The best thing to use for this is Elastoplast, a waterproof bandage which can be left on for two weeks or more at a time. Small varicosities of the calf of the leg usually respond well to injection treatment alone. If there are incompetent valves of the great saphenous vein alone, high ligation above all tributaries plus the injection of 2 c.c. of 5 per cent sodium morrhuate into the distal segment of the vein insures the best end result. The operation does not require hospitalization and the patient may go home after one hour. If the other valves are incompetent, the internal saphenous vein should be ligated below all communicating veins with bad valves. The extent of ligation and incompetency of the valves is determined by application of a tourniquet at various levels along the thigh. The contraindications to active treatment are old age and debilitating diseases, the presence of pregnancy or phlebitis, and impairment of the arterial blood supply to the part.

The edema of Milroy's disease may respond to a supporting elastic bandage or stocking, thyroid extract and massage. Benefit may be derived from an operation of the Kondoleon type which attempts to establish lymph drainage with the unobstructed deep lymphatics, by spiral incisions and removal of wedge shaped pieces of skin, subcutaneous tissue and fascia. Sistrunk's operation consist of removal of skin, fat and aponeurosis through an elliptical incision extending from the crest of the ilium to the external malleolus, after preoperative elevation and bandaging of the part for two weeks. Handley's operation is of limited value and resorts to strands of tubular silk to afford drainage with the deep lymphatics.

Insulin edema can be controlled by restriction of salt and withdrawal or reduction of the dose of Insulin. Some cases will clear with restriction of salt alone.

There is no treatment for the terminal edema of wasting diseases.

808 Professional Building.

FISH-BONE PERFORATING THE CAECUM SIMULATING ACUTE APPENDICITIS.

WESLEY FRY, M.D.,
Washington, D. C.

Ingested foreign bodies do not often perforate the intestinal tract. Among those that do, the fish-bone is perhaps the commonest offender. This is readily understood when we consider the relative frequency with which people complain of fish-bones becoming lodged in the throat. However, the condition is infrequently found at operation, to judge from the paucity of cases reported in the literature. Six cases were reported for a twelve-year period from one of New York's largest hospitals. Bearse reported three cases, Armitage three, and the few others are isolated cases.

The clinical picture presented by these cases is usually interpreted in terms of a common inflammatory lesion of some part of the abdomen and the true condition is not suspected until it is revealed by laparotomy. In some instances a careful pre-operative history might have given a clue to the diagnosis as in the following case recently treated by the writer.

CASE REPORT

The patient was a Negro, male, age twenty-five.

Complaint.—Pain in lower abdomen; duration two weeks.

Present Illness.—For two weeks prior to admission to the hospital patient had pain in the right lower abdominal quadrant. The pain had been moderate and remained localized there. It was of a dull character and rather constant than intermittent. About twenty-four hours before admission patient had an increase in the severity of the pain. By keeping his thighs flexed he was able to obtain partial relief from the pain. He went to bed at the usual time but the pain had increased to such an extent as to keep him awake. He became nauseated and vomited once. Bowel movements normal and regular. Patient gave history of an untreated penile lesion several years previously which lasted two weeks. Except for a slight cough of two weeks duration there were no other symptoms.

Physical Examination.—Patient appeared acutely ill. Temperature 98.2, pulse forty-eight, respirations twenty, blood pressure 110/80. Slight injection of pharynx. Heart and lungs normal. Abdomen flat. No visible peristalsis. Increased muscle tonus over right rectus, especially the lower portion. Generalized tenderness with most marked tenderness in the right lower quadrant. Rebound tenderness and also hyperæsthesia were present in this area. Rectal examination revealed a normal prostate and rectum. There was some tenderness high in the right side of the pelvis.

Laboratory Findings.—Urinalysis normal. WBC 8,300. Neutrophiles 84 per cent. Wassermann negative.

A *diagnosis* of acute appendicitis was made.

Operation.—A Davis incision was made. The omentum and cæcum were found adherent to the anterior and lateral abdominal walls and could not be delivered into the wound. The incision was extended and with the greatest of difficulty adhesions were freed sufficiently to deliver the cæcum. A fibrous cord about a quarter inch in diameter was found running across the base of the cæcum which was thought to be the appendix but further dissection revealed it to be the right obliterated umbilical artery. In dissecting the adhesions to expose the appendix, an area of induration was found near the ileo-cecal junction which felt almost like cartilage. In separating this area of adhesions a fish-bone was found perforating the caecum. A small fibrotic appendix was found and removed. Abdomen was closed with one cigarette drain. Prompt and complete recovery followed operation.

After discovery of the fish-bone perforating the gut, the patient was quizzed further and the following information obtained: Three days before the onset of symptoms patient had been eating a fish sandwich when a bone became lodged in his throat. He could not remove or cough up the bone so he ate some dry bread and succeeded in swallowing it.

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New York Avenue, bet. 17th and 18th Streets.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of January, shows the following cases compared with the same month in 1938:

	1939	*1938*
Typhoid and paratyphoid fever	11	18
Diphtheria	88	86
Scarlet fever	160	196
Measles	329	1,493
Meningitis	9	15
Poliomyelitis	2	1
Rocky Mountain spotted fever	0	0
Typhus fever	0	0
Undulant fever	1	7
Tularemia	10	16

PNEUMONIA TYPING STATIONS AND THERAPEUTIC SERA DEPOTS

In cooperation with the Pneumonia Commission of the Medical Society of Virginia, the Virginia Department of Health has established agreements with twenty-nine laboratories throughout the State to serve as typing stations and depots of therapeutic sera for cases of pneumococcic pneumonia. The objective of this plan is to provide this service within a twenty-five to thirty mile radius of every community. The selection of individual laboratories has been determined by their geographical location and the availability of facilities for performing the work. Because of limited funds, it would be impossible to include every laboratory now performing this examination in the present arrangements, nor is it to be inferred that the present list of laboratories designated as approved typing stations are recommended by the Department as the only institutions qualified to render this service or even those of choice. In regard to the larger independent cities, agreements have been establishd in some of them with their full-time health departments, where such departments exist. The central laboratory of this Department in Richmond, and the branch laboratories located at Norton, Abingdon, and Luray, are included in the present arrangement.

The present laboratories participating in this plan have been approved on the following conditions: adequate laboratory facilities for the performance of the Neufeld Test, one or more qualified full-time technicians trained in the performance of this test, and adequate refrigeration for the storage of therapeutic serum. With the exception of those laboratories directly under the supervision of this Department, in which all examinations are performed without charge, the fee for the typing service has been left entirely up to the individual stations for those patients financially able to pay. Sputa from indigent cases, however, is accepted and examined without charge.

Containers for the collection of specimens of sputa may be obtained from each of the typing stations or from the local health departments. These containers cannot be mailed and must be carried in person or by messenger to the laboratory for examination.

The Virginia Department of Health does not advocate or recommend any particular brand of anti-pneumococcic serum. However, through agreement with the Gilliland Laboratories, licensed by the

PNEUMONIA TYPING STATIONS
Cooperating with the Virginia Department of Health

Abingdon	Washington County	District Laboratory.
Arlington	Arlington County	Arlington County Health Department
Charlottesville	Albemarle County	University of Virginia Hospital
Christiansburg	Montgomery County	New Altamont Hospital
Clifton Forge	Alleghany County	Clifton Forge Hospital
Danville	Pittsylvania County	Danville City Health Department
Farmville	Prince Edward County	Southside Community Hospital
Franklin	Southampton County	Raiford Hospital
Fredericksburg*	Spotsylvania County	Mary Washington Hospital
Galax	Grayson County	Galax Hospital and Clinic
Harrisonburg	Rockingham County	Rockingham Memorial Hospital
Kenbridge	Lunenburg County	Freeman, Kendig and Showalter Clinic
Lexington	Rockbridge County	Jackson Memorial Hospital
Luray	Page County	District Laboratory
Lynchburg	Campbell County	Lynchburg City Health Department
Marion	Smyth County	Southwestern State Hospital
Martinsville	Henry County	Shackelford Hospital
Nassawadox	Northampton County	Northampton-Accomac Memorial Hospital
Norfolk	Norfolk County	Norfolk City Health Department
Norton	Wise County	District Laboratory
Pennington Gap	Lee County	Lee General Hospital
Pulaski	Pulaski County	Pulaski Hospital, Inc.
Richlands	Tazewell County	Mattie Williams Hospital
Richmond	Henrico County	State Laboratory
Roanoke	Roanoke County	Roanoke City Health Department
South Boston	Halifax County	South Boston Hospital
Staunton	Augusta County	King's Daughters' Hospital
Suffolk	Nansemond County	Lakeview Hospital
Winchester	Frederick County	Winchester Memorial Hospital

*Service will be available withip 60 days.

This list is not intended as a complete roster of all laboratories now engaged in the typing of pneumonia, but includes only those selected by reason of geographical location to provide this service to all areas of the State.

National Institute of Health, therapeutic serum will be carried in each of the typing stations for distribution to the physicians at the same price for which these products are distributed from the Department in Richmond. Antipneumococcic (horse) serum for Types I and II is available in 10,000 unit packages at $3.00, and in 20,000 unit packages for $6.00. Antipneumococcic (rabbit) serum for Types I, II, V, VII, VIII, and XIV in 20,000 unit packages is available at $6.75 per package. As sera for other types are made available by this laboratory, they will be announced and supplied according to contract price. At present sera for several types other than those mentioned may be obtained from other biological houses and their distributors.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Petersburg Medical Auxiliary.

Plans for the annual linen shower for Petersburg Hospital were completed when the local Medical Auxiliary met in the home of the president, Mrs. Allen Barker, for its monthly meeting.

Mrs. Herbert Jones, chairman of the linen shower, announced that her committee was organized and giving splendid reports as to the interest shown in this event which will be held February 28. The chairman also reported that speakers would be furnished any group or organization wishing further information at any time and requested that she be notified if speakers were wanted in order that arrangements might be made in advance.

Two local stores have hospital supplies which will be most acceptable for this shower on display tables and have offered to keep these tables open with articles at the special rates given for this purpose until the day of the shower. A special shipment of hospital towels has been ordered to be made up by one of these stores and all needed supplies are on sale at this time.

After the business session of the Medical Auxiliary meeting, the program chairman introduced Mrs. Wright Clarkson, who gave a most splendid book review of the life of a famous woman surgeon, Rosalie Slaughter Morton. This noted physician, whose father was from Lynchburg, began her early school days there, later studying medicine at the University of Pennsylvania, in Berlin, Vienna, Paris, London, Ceylon and India. Later she established herself with unusual success as a surgeon, practicing in Washington, in New York City and in Winter Park, Fla., where she now lives. Dr. Morton has received eight decorations for distinguished service in this country and abroad. Mrs. Clarkson mentioned the fact that this well known surgeon has many close friends in Petersburg, having visited here in the homes of the Mahones, McGills, Masons and other families.

The chairman of the Memorial Bed, which is supported at Blue Ridge Sanatorium in memory of three late members of the State Auxiliary Advisory Council, Drs. Leigh, Hodges and F. J. Wright, stated that in addition to the quota assigned this auxiliary as its part in the upkeep of this memorial fund, two magazines had been sent the patients at Christmas by local physicians, not associated with the auxiliary, and of a special contribution made for this cause by a friend in memory of her local physician.

At the close of the meeting tea was served by Mrs. Barker to the following: Mrs. Wright Clarkson, Mrs. Philip Jacobson, Mrs. Munford Yates, Mrs. Herbert Jones, Mrs. E. J. Nixon, Mrs. H. M. Snead, Mrs. H. Cantor, Mrs. Meade Edmunds, Mrs. W. B. McIlwaine, Mrs. J. A. Pilout and Mrs. F. J. Wright. Miss Alice Taylor, a guest, was invited to join the auxiliary, since wives, mothers and sisters of physicians are eligible to membership.

(MRS. F. J.) ANNE P. WRIGHT.

The Auxiliary of James City County-Williamsburg Medical Society

Met at the home of Mrs. Frederick R. Person, the new President, on Tuesday, January 10. Nine members were present. Old and new business was discussed, after which the program chairman, Mrs. J. B. Porterfield, took charge of the meeting. Since Socialized Medicine is holding the spotlight at the present time, Mrs. Porterfield decided to have the

view of several medical men and laymen presented to the Auxiliary during the year. Dr. E. B. Kilby, of Toano, in an interesting and helpful way, gave the viewpoint of the average practicing physician. A delightful social hour followed adjournment of meeting.

(MRS. L. V.) MABEL R. HENDERSON.

The Woman's Auxiliary to the Northampton-Accomac Medical Societies

Held its first meeting of the new year on January 3, at the home of the President, Mrs. J. Fred Edmonds, in Accomac.

A large benefit card party was planned for early Spring for Auxiliary funds to be used for the Northampton-Accomac Memorial Hospital at Nassawadox for general expenses.

A donation was made toward the maintenance of a bed at Catawba Sanatorium, and a gift of chairs for patients' rooms at the local hospital was announced.

The April meeting is to be held at "Stockley", the home of Mrs. G. W. Holland at Eastville.

At the conclusion of the meeting, Mrs. Edmonds' mother, Mrs. Dunaway, presided at a beautifully appointed tea table. There were fourteen members present.

CATHERINE R. TROWER,
(MRS. HOLLAND TROWER),
Chairman, Press and Publicity.

The Woman's Auxiliary to the Richmond Academy of Medicine

Held its first meeting of the year on February 24, in the Academy of Medicine Building, with the new President, Mrs. James K. Hall, presiding. Plans for the annual card party were presented by Mrs. A. I. Dodson, Philanthropy chairman. Other reports were also heard and several projects for the work of the year were discussed. Mrs. Hall had charge of the program for the day and read an article on "George Washington—A Clinical Sketch".

New officers of this Auxiliary are: President, Mrs. James K. Hall; president elect, Mrs. Lawrence O. Snead; vice-president, Mrs. Harvey Haag; recording secretary, Mrs. Lee E. Sutton; corresponding secretary, Mrs. Austin I. Dodson; and treasurer, Mrs. J. O. Fitzgerald. Mrs. Snead, Mrs. Haag and Mrs. Dodson automatically became Membership, Program, and Philanthropy chairmen, respectively, and Mrs. Hall appointed Mrs. Angus Nichols, Jr., as Press and Publicity chairman.

Radio Health Broadcasts.

March 1—*Diabetes*—Individual efforts plus medical aid win against diabetes.

March 8—*Community Health*—Water, waste and sanitation. Importance of community control of water supplies, sewage disposal and general sanitary matters.

March 15—*Guarding Fresh Foods*—What the community can and must do to protect fresh foods, such as fish, fruits, vegetables, meats, bakery goods.

March 22—*Auditing the Health Record*—The meaning and the importance of vital statistics, contagious disease reporting and community health records.

March 29—*Animal Diseases Transmitted to Man*—Rabbit fever, rabies, undulant fever and similar infections, and what can be done about them.

Legislation.

The National Chairman of Legislation has requested the following information of the Auxiliary to the Medical Society:

"How many groups are studying pending legislation, either Federal or State?" "How many are studying Socialized Medicine?"

Will the Program Chairmen of branches in Virginia kindly send this information to Mrs. P. M. Chichester, 3309 Kensington Avenue, Richmond.

Truth About Medicine

In addition to the articles previously enumerated the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

The Upjohn Company

Epinephrine Powder—U.S.P., 0.065 Gm. (1 gr.)—Upjohn
Solution Epinephrine 1:1000—Upjohn

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Diphtheria Toxin Diluted for Schick Test (New and Nonofficial Remedies, 1938, p. 435).—This product is also marketed in packages of one vial containing 5 cc. of diluted diphtheria toxin, sufficient for fifty tests. Parke, Davis & Co., Detroit.

Iron and Ammonium Citrates.—"Contains ferric citrate equivalent to not less than 16.5 per cent and not more than 18.5 per cent of fe" U.S.P. For actions and uses of this product see general article Iron and Iron Compounds,

New and Nonofficial Remedies, 1938, p. 279. It is supplied in the form of capsules 0.5 Gm. (7½ grains). The Upjohn Co., Kalamazoo, Mich.

Whole Leaf Tablets Digitalis "Haskell," 1½ grains.—Each tablet contains one cat unit digitalis (New and Nonofficial Remedies, 1938, p. 186). Charles C. Haskell & Co., Inc., Richmond, Va.

Ampoule Solution Iron and Ammonium Citrates Green, 0.05 Gm. (¾ grain), 1 cc.—Each cubic centimeter contains green iron and ammonium citrates—U.S.P. (New and Nonofficial Remedies, 1938, p. 281) 0.05 Gm., and quinine and urea hydrochloride—U.S.P., 0.005 Gm., in aqueous solution. The Upjohn Co., Kalamazoo, Mich.

Ampoule Solution Iron and Ammonium Citrates Green, 0.1 Gm. (1½ grains), 1 cc.—Each cubic centimeter contains green iron and ammonium citrates—U.S.P. (New and Nonofficial Remedies, 1938, p. 281) 0.1 Gm., and quinine and urea hydochloride—U.S.P. 0.005 Gm., in aqueous solution. The Upjohn Co., Kalamazoo, Mich.

Carbromal Tablets, 5 grains.—Each tablet contains carbromal (New and Nonofficial Remedies, 1938, p. 155) 5 grains. The Upjohn Co., Kalamazoo, Mich. (*J. A. M. A.*, January 7, 1939, p. 49.)

Hypodermic Tablets Strophanthin 1/200 grain—Upjohn.—Physiologically standardized by the Magnus modification of the Hatcher and Brody method to contain approximately 1.5 cat units strophanthin (New and Nonofficial Remedies, 1938, p. 200). The Upjohn Co., Kalamazoo, Mich.

Solution Pituitary Extract—U.S.P. (Upjohn). A brand of solution of pituitary—U.S.P. (New and Nonofficial Remedies, 1938, p. 350). It is supplied in the form of ampoules ½ cc. and 1 cc. The Upjohn Co., Kalamazoo, Mich. (*J. A. M. A.*, January 14, 1939, p. 145.)

Antipneumococcic Serum, Refined and Concentrated, Type I.—Prepared by immunizing horses with intravenous injections of the virulent and avirulent cultures of type I and type II pneumococci. The serum is refined and concentrated by the method of Lloyd D. Felton. Sterility tests are carried out in the manner prescribed by the National Institute of Health and safety tests are carried out by injection into white mice and guinea pigs. The product is marketed in packages of one syringe containing 10,000 units and in packages of one syringe containing 20,000 units, each accompanied by a vial of dilute serum (1:10) for the sensitivity test. Gilliland Laboratories, Inc., Marietta, Pa. (*J. A. M. A.*, January 28, 1939, p. 329.)

Propaganda for Reform

Drugs in Treatment of Arthritis.—The Council on Pharmacy and Chemistry in its report on colloidal sulfur in the treatment of arthritis points out that before acceptance satisfactory evidence must be produced that sufficient controls have been employed and that follow-up periods of sufficient length to rule out spontaneous remissions have been observed. Further, the types of cases in which the preparation may be used with a fair expectation of benefit must be determined and the chief contraindications, optimal dosage and best form and route for use must be defined. These criteria as outlined for sulfur therapy in arthritis could well be employed in assessing the value of any other of the many drugs employed in this chronic and clinically variable disease. While considerable skepticism as to the value of colloidal sulfur in arthritis has previously been expressed elsewhere, this report of the Council should serve to crystallize the objections to accepting this form of therapy as in any way scientifically established. (*J. A. M. A.*, October 29, 1938, p. 1662.)

The Present Status of Immune Globulin (Human).—In 1935 the Council on Pharmacy and Chemistry reported (The *Journal A. M. A.*, August 17, 1935, p. 510) that although Immune Globulin (Human) appears to be a promising immunization agent, more evidence of its value is needed before it may be generally used by the medical profession. A study of the literature which has become available since that report was published indicates that the following points are of importance: 1. The use of the diphtheria antitoxin titer is entirely satisfactory as an adequate basis for determination of the measles immunizing potency of the preparations. 2. The degree of modification which is accomplished by the various immunizing preparations apparently determines whether or not a temporary or permanent immunity is conferred. 3. The reports seem to be about equally divided on the question of whether or not this immunizing agent is superior to convalescent serum. 4. It is as useful for the modification of measles in home cases as it is for prevention in institutional cases. 5. The reactions are not infrequent and not always mild following the use of this agent, and attempts to avoid them have included refinement and concentration as well as oral administration instead of injection of the immunizing agent. 6. The preparation has a greater availability than the other immunizing agents. 7. The advantages and disadvantages of immune globulin (human) as an immunizing agent in the prevention and modification of measles are at least equal to those of other preparations which have been used for a similar purpose. On the basis of its study of the further evidence for Immune Globulin (Human) the Council has voted to accept the product for inclusion in New and Nonofficial Remedies. (*J. A. M. A.*, November 5, 1938, p. 1764.)

Intranasal Medication.—Recently Walsh and Cannon (Ann. Otol., Rhin. & Laryng., 47:579 (September), 1938) reported that the intranasal administration of oily preparations, when given in large total amounts and over a long period to normal rabbits free from upper respiratory infections, seemed to initiate lesions in the lungs which could be demonstrated in roentgenograms. These investigators found that isotonic saline solutions containing such vasoconstrictors as ephedrine hydrochloride and neosynephrin hydrochloride did not cause pulmonary damage after intranasal instillation in normal rabbits. The observations of these workers and the reports of others point to the potential dangers of intranasal medication and to the tentative conclusion that the only completely safe intranasal medicaments are weak saline solutions of appropriate vasoconstrictors. (*J. A. M. A.*, November 5, 1938, p. 1770.)

Book Announcements

Anus, Rectum, Sigmoid Colon. Diagnosis and Treatment. By HARRY ELLICOTT BACON, B. S., M. D., F. A. C. S., F. A. P. S., Assistant Professor of Proctology, Temple University School of Medicine; Assistant Professor of Proctology, Graduate School of Medicine, University of Pennsylvania; Visiting Proctologist, St. Luke's and Children's Hospital; Proctologist, National Stomach Hospital; etc. Introduction by W. Wayne Babcock, A. M., M. D., LL. D., F. A. C. S., Professor of Surgery, Temple University School of Medicine. Foreword by J. P. Lockhart-Mummery, M. A., M. B., B. C. (Cantab), F. R. C. S. (Eng.), Emeritus Surgeon, St. Mark's Hospital, London, England. J. B. Lippincott Company. Philadelphia, 1938. Octavo of xxiv-855 pages. 487 Illustrations in the text mostly original by William Brown McNett. Cloth. Price, $8.50.

Dr. Bacon's book is excellently conceived. It is simple and easy to read and above all its descriptions are lucid and to the point. It is a complete work for the student adequately covering all phases of the subject, and though tiresome detail is avoided it will serve as an excellent reference for the practitioner or specialist.

The confusing anatomy is most comprehensively presented. The chapters on the infections, fissure, abscesses, fistulae, proctitis and venereal diseases are good.

The literature has been carefully gleaned for advances in conception of entities and their treatment. Authorities are freely quoted and credit given them.

The work contains numerous illustrations most of which are original and appear in print for the first time.

Dr. Bacon's timely book will have served its purpose if it does no more than open the eyes of the profession to the vastness of the subject and the relationship of proctologic syndromes to the patient in general.

ROBERT V. TERRELL.

Interns Handbook. A Guide, Especially in Emergencies, for the Intern and the Physician in General Practice. By Members of the Faculty of the College of Medicine Syracuse University. Under the Direction of M. S. DOOLEY, A. B., M. D., Chairman Publication Committee. Second Edition, Revised and Reset. Philadelphia. J. B. Lippincott Company. 1938. 12mo of xv-523 pages. Cloth. Price, $3.00.

Practical guides for the interns are exceedingly rare. They are either so voluminous that their use is discouraging or so lacking in necessary detail that they are of little value. This handbook overcomes both faults. It is small enough to carry, 4½x7x¾ inches, and yet contains over 500 pages of information.

Methods taught in isolated sections during student days are again set down in detail under usable classifications for emergency reference. Normal physico-chemical values are given with leads as to the cause of their variation. So-called "routine" examinations are described in detail so that the word "routine" is given meaning. Medical, pediatric, psychiatric histories and examinations are outlined in detail. Surgical procedures are given with a personal clarity. Anesthesia, dietetics and nursing procedures together with legal and ethical customs are given appropriate space. Emergency differential diagnoses and immediate treatment are clearly and tersely summarized. Warning is given against the "cook-book" attitude even as its recipes are stated.

For the intern in the large teaching hospital it will crystallize his daily experience and guide his assimilation of it; to the intern of the smaller institution it will be a teacher; and to the general practitioner a valuable reference.

JOHN P. LYNCH.

Scarlet Fever. By GEORGE F. DICK, M.D., D.Sc., Professor of Medicine, University of Chicago; Attending Physician, Billings Memorial Hospital; etc. And GLADYS HENRY DICK, M.D., D.Sc. The Year Book Publishers, Inc, Chicago, Illinois. 1938. Octavo of 149 pages. Cloth.

There is still a thought in many minds that scarlet fever is a disease of very little, if any, consequence. In a brief review the little book by the Drs. Dick, entitled, "Scarlet Fever", one soon learns of the serious nature of this disease as well as of its complications.

Scarlet Fever has existed since the earliest times. From a historical point of view, it was distinguished from others of the acute exanthems by Sydenham in the latter part of the 17th century. The etiology, symptoms and complications are carefully covered in a concise, readable form, as is also the diagnosis, prognosis and treatment. There are chapters covering the preparation of the serum and antitoxin skin tests and susceptibility. This valuable treatise should be read and kept handy for all of those who see scarlet fever, whether in private practice or public health. I cannot recommend it too highly and I am sure the authors' statements can be taken authoritatively.

C. L. OUTLAND.

Virginia Medical Monthly

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Editorial

The Dean is Dead.

Dr. J. C. Flippin died suddenly on February 16, 1939. In his death the University of Virginia and the medical profession of the State of Virginia lost more than a clinical professor of medicine, more than an astute and honored internist, more than a medical statesman possessed of penetrating insight into the socio-economic problems of modern medical practice. In these capacities he can perhaps be replaced more easily than in his capacity of Dean of the School of Medicine.

Dean of Medicine. Not a puppet, not a figurehead, not a rubber stamp, not a scapegoat, not a registration bureau for new students, not an official desk for recording complaints, not a functionary to represent a department at meetings, not a passer-out of diplomas on graduation day, not a dispenser of parliamentary rules at faculty meetings, but a dean, a man of dignity and presence, of worth, of sagacity and of force, a man of large and contagious ideals who possessed the will and the way to make his ideals effective.

He was a man who knew the trends in medical education: the emphasis that was being put on the arts in premedical training and the tendency to place anatomy and bacteriology along with chemistry, physics and biology as the basic sciences to be mastered before undertaking the medical curriculum; the wider application of aptitude tests in the selection of matriculates in medicine; the overcrowding of the curriculum and excessive departmentalization with resultant demoralizing emphasis on the specialties; the growth of therapeutic nihilism; the abdication of logic in medical teaching in favor of a technique calculated to produce skilled professional imitators; the confusion of values, scientific and human, and the general tendency of medical schools to produce too many graduates and too few doctors. Conversant with all these tendencies, he steered a wise middle course. Holding fast to the best of the old, he was quick to adopt the best of the new.

They'll be missing you, Mr. Dean, those lads who found in your kindly smile and helpful counsel constant inspiration as they climbed the steep ascents of knowledge. They'll be missing you in classroom and ward, where your clear and practiced mind made plain many knotty problems. In the faculty, too, you will be missed, you who gave purpose and continuity to collective teaching, held many minds to one task, stifled petty bickering, gave all an equal hearing, stood calm and useful and unafraid and lived to see in your time medical teaching in Charlottesville quicken its pace and extend its stakes more than in all the previous history of the University of Virginia. May your work go on and a successor measuring up to the stature of your manhood be found.

Boerhaave.

It is said that during his lifetime a letter mailed in China directed to "The Greatest Doctor in the World" was taken straight to the door of Herman Boerhaave on the Rapenburg in Leyden. It is now two hundred years since the birth of Holland's greatest doctor and a few months ago the University of Leyden and various Dutch medical organizations celebrated it in ceremonies featured by a two days' pilgrimage to his birth place in Voorhout, to the Academy of Harderwijk where he got his degree, to his old wards in St. Caecilia Gasthuis, to the classrooms where he taught at the University of Leyden, to his residence and to his monument in Leyden and to his tomb in St. Pieterskerk. The Dutch appreciate their clinical genius and seem to know how to celebrate the birthday of a national figure. One toys with the idea that there is some connection between the Dutch people's exaltation of peace time heroes and their ability to remain outside the warlike endeavors of surrounding nations.

Pneumonia Typing Stations.

Elsewhere in this issue of the VIRGINIA MEDICAL MONTHLY we publish a list of approved pneumonia typing stations. The list has been prepared by the State Department of Health and is the result of many months of real work on the part of its retiring epidemiologist, Dr. G. F. McGinnis. It marks the passage of a mile stone in the program of the Virginia Pneumonia Commission because until efficient and accessible typing stations were made available to all doctors of the State the more general use of antipneumococcic serum by the profession of the State was impossible.

Inspection of this list of typing stations will show that they have been located equidistantly over the State. In fact they have been so placed that with few exceptions no doctor in the State is further than twenty-five miles from these laboratory facilities.

All of these stations have been twice inspected by the Department of Health and the stamp of approval has been placed upon them only after their demonstration of ability satisfactorily to carry through the typing technique. The Department of Health has generously and wisely adopted the policy of offering training courses for all technicians desiring to master the Neufeld procedure. In a number of instances advantage has been taken of this opportunity. It is understood that the Department of Health will continue to train technicians who apply.

In the cities typing stations have not been set up outside the branch laboratories of the Department of Health. This brings up the question of how laboratories, especially those in the cities, may be placed upon the approved list. The procedure is a simple one. On application to the Board of Health inspection of the facilities of any laboratory will be made and if it measures up to recognized standards of excellence approval will be forthcoming. It is assumed that a large number of laboratories in Virginia will take steps to place themselves on the approved list.

Dr. McGinnis who has recently resigned from the State Department of Health to accept important responsibilities elsewhere has made fine and lasting contributions to the work of Pneumonia Control in Virginia. He will be missed.

Department of Clinical and Medical Education of the Medical Society of Virginia

Executive Committee.

A meeting of the Executive Committee, held in Richmond on January 17, was attended by Dr. G. F. Simpson, Chairman, Dr. Lee Sutton, Dr. I. C. Riggin, Dr. E. L. Alexander, and Mr. G. B. Zehmer, Executive Secretary. The resignation of Dr. Robert B. Hightower, Instructor in Pediatrics, was received and accepted. In accepting Dr. Hightower's resignation the committee expressed its high appreciation of the quality of his instruction and of the valuable contribution he has made to the cause of postgraduate medical instruction in Virginia. Dr. Hightower's resignation was made effective as of February 1, 1939, in order that he might accept appointment as Assistant Director of School Medical Inspection for the District of Columbia.

It was decided to accept the invitation of the American Medical Association to present an exhibit

of the work of the Department of Clinical and Medical Education at the St. Louis meeting on May 15 to 19, 1939.

Internal Medicine.

For the information of local societies that may wish to undertake a postgraduate course in Internal Medicine, we wish to give a brief statement of the usual procedure that is followed.

When the Executive Secretary receives a request for information from a local society the following information is given in reply:

1. Courses of from five to ten discussions can be arranged if the local society will cooperate in enrolling members and making local arrangements.

2. The cost of the course will vary from five dollars to ten dollars per doctor, depending upon the number of meetings, the distance travelled by the speakers, and the number enrolled for the course.

3. A list of suggestive topics and speakers is submitted to which the local society is requested to add subjects and speakers of their own choice. A selection is then made by the local society of the topics they wish treated.

4. The speakers are usually obtained from the faculties of the University of Virginia Medical School or the Medical College of Virginia. Occasionally, however, a practicing physician from another state may be obtained.

5. The usual procedure will be for the guest speaker to devote about forty minutes to the presentation of a prepared paper. This will be followed by a clinic or, where clinical cases are not available, case histories will be presented for discussion. Oral and written questions will be invited at this time. The entire discussion should not consume more than two hours.

6. A local committee should be appointed to see that clinical cases are provided or case histories are presented at each meeting.

7. When topics have been selected by the local society, the Executive Secretary will then proceed to engage speakers, mail a printed program to local doctors, and make other necessary arrangements for the course.

Arrangements have been made under this procedure for courses to be held as follows:

ALEXANDRIA

February 24—Urological Problems in Children—Dr. Charles Howze, Washington, D. C.

March 3—Diseases of the Thyroid, Suprarenal and Parathyroid Glands—Dr. H. B. Mulholland, University of Virginia.

March 10—Chronic Rheumatism—Dr. Oscar Swineford, University of Virginia.

March 17—Gynecological Problems in Office Practice—Dr. Stuart Michaux, Medical College of Virginia.

March 24—Clinical Acidosis, Alkalosis, and Dehydration—Dr. H. B. Mulholland, University of Virginia.

LYNCHBURG

This course will begin on April 7 and continue through June 9.

MARTINSVILLE

This course will begin on March 7 and continue through April 7. Complete programs for the Lynchburg and Martinsville courses will be announced in the next issue of the VIRGINIA MEDICAL MONTHLY.

St. Louis Exhibit.

It has been decided to present an exhibit of Post-Graduate Medical Instruction in Virginia at the meeting of the American Medical Association in May. For this purpose the Executive Secretary wishes to receive any photographs available of groups that have been met by any of the instructors from the Department of Clinical and Medical Education. If you know of any such photographs please notify the Executive Secretary at once. Suggestions will be welcomed from all sources. Present plans call for an exhibit of photographs; graphs showing enrollments, attendance, etc.; maps showing location of courses, mimeographed notes of instructors, and similar materials.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

Warwick County Medical Society.

Dr. Thomas N. Spessard, formerly of Roanoke but now associated with Dr. Frank Redwood of Norfolk in the practice of neurosurgery and neuropsychiatry, was the guest speaker before this Society at its regular meeting on February 6, his subject being "Intracranial Hemorrhage, Diagnosis and Treatment". There were thirty members and visitors in attendance.

Dr. E. B. Mewborne and Dr. Orvin C. Jones, both of Newport News, are the new president and secretary, respectively, of this society, and Dr. T. C. Lawford of Hilton Village is vice-president.

The Danville-Pittsylvania Academy of Medicine

Held a dinner meeting on February 14, at which time Dr. Oscar Swineford, of the University of Virginia, presented a paper on "The Pathologic Physiology and Manifestation of Allergic Diseases."

The next meeting of the Academy will be held on March 14. Dr. E. C. Hamblen from Duke Medical School, Durham, N. C., will speak on "Endocrine Disturbances and Present Day Endocrine Therapy" and Dr. C. P. Mangum, Richmond, on "Pediatric Endocrinology."

SNOWDEN C. HALL, JR.,
Secretary.

The Pittsylvania County Division

Of the Danville-Pittsylvania Academy of Medicine, at a meeting on January 26, elected Dr. H. H. Hammer and Dr. Girard V. Thompson, both of Chatham, as President and Secretary-Treasurer, respectively.

The Roanoke Academy of Medicine

Held its regular meeting on February 6, with the following scientific program: Post-Operative Thrombophlebitis by Dr. Henry Lee; and The Diagnosis and Treatment of Peripheral Vascular Diseases by Dr. Beverly C. Smith, Associate in Surgery, College of Physicians and Surgeons of Columbia University, New York City.

The Mid-Tidewater Medical Society

Met on January 24 at West Point, with Dr. J. R. Parker, President, presiding.

At the morning session, papers were presented by Dr. Paul C. Pearson, Venter, on "Spinal Puncture in the Treatment of Hypertension Due to Nephritis" and Dr. D. G. Chapman, Richmond, on "Treatment and Diagnosis of Lobar Pneumonia". Following this session, the society and guests were entertained at luncheon at the York Inn by the local committee, composed of Drs. W. S. Cox, chairman, U. H. Johnson, M. H. Harris, and J. R. Parker.

In the afternoon, papers were read by the following Richmond doctors: Dr. L. T. Price on "The Diagnosis of Syphilis"; Dr. T. Dewey Davis on "Pathology with Especial Reference to Syphilis of the Circulatory System"; Dr. Charles M. Nelson on "Treatment of Syphilis"; and Dr. O. L. Anderson, Chief of the Venereal Disease Control Commission of the State Department of Health, on "Syphilis and Public Health". Dr. J. M. Hutcheson, also of Richmond, opened the discussion.

Among the members and guests, in addition to those on the program, were Drs. F. S. Johns, William Johns, W. W. Rixey, Guy Horsley, J. P. Lynch, Kinloch Nelson, H. U. Stephenson, and Reuben F. Simms, from Richmond; Dr. Wright Clarkson from Petersburg; Dr. J. W. Smith, Hayes Store, Drs. H. A. Tabb and W. H. Springall, Gloucester; Dr. N. D. Nelms, Mathews; and Dr. R. D. Bates, Newtown.

The Woman's Auxiliary to the Mid-Tidewater Medical Society met on this date also at the home of Dr. and Mrs. M. H. Harris, and the visiting ladies were entertained by Mrs. W. S. Cox and Mrs. Harris.

Norfolk County Medical Society.

Dr. Russell L. Haden, Physician-in-Chief of the Cleveland Clinic, Cleveland, Ohio, spoke before this Society on January 30, on "Clinical Nutritional Deficiency Disease". He was an invited guest of the President, Dr. William B. Newcomb. After the meeting, the entire Society was entertained by Dr. Newcomb, at the Town Club, in honor of Dr. Haden.

The Augusta County Medical Society

Held its regular quarterly meeting in Staunton, on February 1, with the President, Dr. W. M. Phelps, presiding. There was an attendance of about

fifty members and guests. The scientific program was a symposium on "Problems of Adequate Medical Care in Augusta County and Staunton". Those taking part were Drs. Alex. F. Robertson, I. M. Nuckols, H. G. Middlekauff, J. C. Neal, and C. W. Rodgers; Mrs. Mattie F. Rice; Mrs. R. R. Heydenreich, and Mr. Charles K. Brown.

Dr. Guy R. Fisher, Staunton, was in charge of the supper.

The Lynchburg Academy of Medicine

Held its regular meeting in the Elks' Club on February 6, at 8:00 P. M., with the President, Dr. Sam Oglesby, presiding.

Dr. C. K. Reinke, State Colony, Virginia, was admitted to membership as a transfer from the Chester County Medical Society.

Dr. Harper presented a very interesting, complete and thorough paper on "Health Insurance." Dr. John Hundley, Jr. presented the "A.M.A. Viewpoint." Due to the recent trend in medicine, the papers were keenly followed and widely discussed by the Academy.

Dr. Baynard Carter, Professor of Gynecology and Obstetrics at Duke University, will be the March guest speaker.

C. E. KEEFER, *Secretary-Treasurer.*

The Tidewater Surgical Club,

Organized in 1937, meets in the Norfolk County Medical Society Library on the first Thursday of each month, from October through June. Its meetings are characterized by round table discussions, a different member leading these at each meeting. Subjects discussed this year have been: Uterine Hemorrhage by Dr. Robert Matthews; Herniations of the Nucleus Pulposus by Dr. George A. Duncan; Treatment of Infection of the Urinary Tract by Dr. C. J. Devine; Treatment of Fractures by Dr. M. H. Todd; Surgery of Pulmonary Tuberculosis by Dr. C. Carroll Smith; and Intestinal Obstruction by Dr. Charles H. Lupton.

The officers of the Club are Dr. C. J. Devine, President; Dr. C. Carroll Smith, President-Elect; Dr. M. H. Todd, Vice-President; and Dr. Charles H. Lupton, Secretary-Treasurer. Drs. B. A. Doggett, N. F. Rodman, and R. B. Nicholls are members of the Executive Committee.

News Notes

Dates Selected for State Meeting.

The Council of the Medical Society of Virginia, at its meeting on February 16, selected October 3, 4, and 5 as the dates for the seventieth annual session of the Society in Richmond. As previously stated, the John Marshall will be hotel headquarters, and Dr. Roshier W. Miller, with an able corps of assistants, will have charge of local arrangements.

You are expected and wanted at this meeting, so mark the dates on your calendar now.

Cancer Committee, Medical Society of Virginia.

In accordance with action of the House of Delegates at its meeting in Danville, last Fall, Dr. Robertson, president, named a committee known as Advisory Committee to the Cancer Foundation. Recently, in the interest of unification of the cancer program in Virginia, he has enlarged the personnel and function of this committee, naming as chairman Dr. E. P. Lehman, who is also chairman for the Virginia section of the American Society for the Control of Cancer. Other members of this committee are: Drs. I. C. Riggin, I. A. Bigger, Fred Hodges, R. L. Payne, R. P. Bell and I. C. Harrison. Dr. Hugh Trout, president-elect, and Dr. Robertson will serve as *ex officio* members of the Committee, which will act in an advisory capacity to the Women's Field Army of the American Society for the Control of Cancer, to the Virginia Cancer Foundation, and to any other activities seeking advice or endorsement on this subject by the Medical Society of Virginia.

South Atlantic Association of Obstetricians and Gynecologists.

This Association, which was organized in Charlotte, N. C., last year, held its first annual meeting in Charleston, S. C., in February, under the presidency of Dr. James R. McCord of Atlanta, Ga. With the additions made this year, the Association now has a membership of ninety specialists from Virginia, the Carolinas, Georgia and Florida. In the election of officers, Dr. M. P. Rucker of Rich-

mond was named president-elect, and Dr. Robert A. Ross of Durham, N. C., was re-elected secretary-treasurer. Dr. Robert Seibels of Columbia, S. C., succeeded to the presidency. Richmond, Va., was selected as the 1940 place of meeting.

Are You Interested in Diabetes?

Dr. Priscilla White, of Boston, widely known for her work on Diabetes, will make an address on *Some of the Newer and Interesting Phases of Diabetes* at the Richmond Academy of Medicine Building, on Tuesday, March 7, at 8:30 P. M.

Dr. White is associated with Dr. Joslin of Boston; she is a polished public speaker, and is much in demand for talks on her chosen subject. She is the author of several books and many scientific articles on the various phases of Diabetes.

This address is sponsored by the local chapter of Alpha Epsilon Iota, National Fraternity of Medical Women. Dr. Regena C. Beck, Chairman, Publicity Committee, Pi Chapter, states that a cordial invitation to attend is extended to all members of the medical profession.

Medical College of Virginia News.

The annual Stuart McGuire Lectures will be held April 27-28. Dr. Wilder Penfield, head of the Montreal Neurological Institute, will be the McGuire lecturer this year. As usual the spring postgraduate clinics will be held in conjunction with the Stuart McGuire lectures. The program will be announced later.

Dr. Walter E. Vest, a graduate of the school of medicine, 1909, will be awarded the honorary degree of Doctor of Science at Commencement, June 6, 1939. Dr. Vest is well known throughout Virginia and West Virginia, being a Virginian by birth. At present he is internist at the Chesapeake and Ohio Railway Hospital, Huntington, West Va. Dr. Vest interned at Memorial Hospital and practiced in Virginia until 1916.

Dr. William T. Sanger, President, attended the annual meeting of the Council on Medical Education and Hospitals of the American Medical Association in Chicago, February 13 and 14.

Dr. Lewis E. Jarrett, Superintendent of the Hospital Division, and Mr. Eldon Roberts, Jr., associate in pharmacy, recently visited Western Reserve University.

At a recent meeting of the Board of Visitors it was voted that the new dormitory for students and internes be designated "Hunton Hall" in honor of the late Eppa Hunton, Jr., who was a member of the Board and its executive committee for many years. Mr. Hunton gave generously both of his time and money to the upbuilding of the college. At the same meeting it was voted that the dormitory for Negro nurses should be designated "Saint Philip Hall".

Mr. George H. Murrill, a graduate in Fine Arts, Yale University, has been appointed artist in residence under a grant from the Carnegie Corporation to execute a series of murals, and at the same time give an informal opportunity to students to see creative work in the process of execution and for discussing it with them as it progresses.

News from University of Virginia, Department of Medicine.

Dr. Louis Hamman, Professor of Medicine at the Johns Hopkins Medical School, delivered the second Alpha Omega Alpha lecture for the session before the students and faculty of the Medical School on the night of January 16. He spoke on the subject of As Others See Us.

At the meeting of the University of Virginia Medical Society on February 6 Dr. Harry F. Flippin, of Philadelphia, spoke on Sulf-Pyridine in the Treatment of Pneumonia.

On February 10, Dr. John Nokes addressed the South Atlantic Association of Obstetricians and Gynecologists on the subject of A Critical Analysis of Cesarean Section.

On February 3, Dr. John Moyer Meredith addressed the Rockbridge County Medical Society on the subject, The Diagnosis of Surgical Lesions in the Spinal Cord.

At the meeting of the University of Virginia Medical Society on February 13, Dr. Philip Bishop spoke on Lipoid Pneumonia.

Jefferson Medical College

Major General Merritte W. Ireland, U. S. A. retired, delivered the annual William Potter Memorial Lecture at the Gollege on February 23. He spoke on "Medicine's Debt to the U. S. Army." General Ireland is one of Jefferson's most distinguished alumni, having been graduated with the class of

1891, and subsequently receiving an honorary LL.D. degree in 1919. He was Surgeon General of the Army during the World War.

The William Potter Memorial Lectures have been given annually since 1928 in honor of the man who served as President of the College Board of Trustees for twenty-nine years.

News from Duke University School of Medicine and Hospital.

On January 18 a Symposium on Pneumonia was held at the Hospital, to which the members of the medical profession and technicians were invited. Dr. Frederic M. Hanes, Professor of Medicine, gave a lecture on Pneumonia in Adults; Dr. Angus McBryde, Assistant Professor of Pediatrics, lectured on Pneumonia in Infants and Children, and a moving picture on The Diagnosis and Treatment of Pneumonia was shown, furnished through the courtesy of the Lederle Laboratories.

On February 8 Dr. Joseph Stokes, Jr., Associate Professor of Pediatrics, University of Pennsylvania School of Medicine, lectured to the staff and students on Viruses, and on February 14 Dr. A. Bruce Gill, Professor of Orthopedic Surgery, University of Pennsylvania School of Medicine, lectured on Open Reduction of Congenital Hip.

The American College of Physicians

Will hold its twenty-third annual session in New Orleans, March 27-31. Dr. William J. Kerr, of San Francisco, is President and will have charge of the program of general scientific sessions. Dr. John H. Musser of New Orleans is General Chairman of the Session, and is in charge of the program of clinics and demonstrations in the hospitals and medical schools and of the program of round table discussions to be conducted at the headquarters.

Dr. Julian L. Rawls,

Of Norfolk, was elected to membership on the board of trustees of the University of Richmond, at its semi-annual meeting in Richmond on February 1.

Birth.

Dr. and Mrs. Wilbur S. Stakes, Patchogue, N. Y., announce the birth of Wilbur Sylvester, Jr., on January 23. Dr. Stakes is a graduate of the Medical College of Virginia, class of '27.

The Richmond Tuberculosis Association,

At its meeting on February 7, re-elected Mr. Tennant Bryan as President. Dr. P. D. Lipscomb was re-elected first vice-president; Dr. Kinloch Nelson was named third vice-president; and Dr. Robert C. Bryan an honorary vice-president. Drs. S. A. Anderson, Jr., T. Dewey Davis, and Emily Gardner were re-elected to the Board of Directors, and Dr. D. D. Talley is a new member.

Syphilis Clinic to be Held at Duke Hospital.

A postgraduate clinic on the diagnosis and treatment of syphilis will be held at Duke University on March 24-25, sponsored by the North Carolina state board of health and the university.

Principal speakers to appear on the program will be Dr. Thomas Parran, surgeon general of the U. S. Public Health Service; Dr. John H. Stokes, Duhring professor of dermatology and syphilology at the University of Pennsylvania; Dr. Joe Earle Moore, associate in medicine and chief of the syphilis division at Johns Hopkins hospital; Dr. Harold N. Cole, professor of dermatology and syphilology at Western Reserve university; Dr. Paul O'Leary, chief of the section of dermatology and syphilology at the Mayo clinic; Dr. P. C. Jeans, professor of pediatrics at the University of Iowa; and Dr. Norman R. Ingraham, associate in dermatology and syphilology at the University of Pennsylvania.

Each of the sessions will be followed by round table discussions, led by North Carolina health officers and medical leaders. Dr. J. Lamar Callaway, of Duke medical school, will preside at the opening session, with Dr. W. P. Richardson, district health officer, of Chapel Hill, leading the round table.

Dr. William deB. MacNider, of the University of North Carolina, will preside over the first afternoon's session, and the round table will be led by Dr. Roy Norton, of the University of North Carolina school of public health, Dr. Carl V. Reynolds, superintendent of the state board of health will preside over the evening program, at which Dr. Parran is to speak. Dean W. C. Davison of the Duke medical school will preside over the concluding session on the morning of the second day, and Dr. E. R. Hardin, health officer of Lumberton, will lead the round table.

Dr. M. M. Wintrobe,

Assistant professor of medicine and director of the section on hematology at Johns Hopkins University Medical School, Baltimore, was the guest speaker before the Richmond Academy of Medicine on Feb-

ruary 14, his subject being The Choice of Methods for the Correction of Anemia and Why.

Dr. M. Cohen,

An alumnus of the Medical College of Virginia, class of '31, is resident in radiology at Parkland Hospital, Dallas, Texas. Prior to accepting this position, he completed an eighteen months' post-graduate course in this subject at the University of Pennsylvania Graduate School of Medicine.

Married.

Dr. Jesse M. Shackelford and Miss Bertha Bowles, both of Martinsville, February 9.

Dr. Edgar Bryan Quarles, class of '37, Medical College of Virginia, and Miss Ruth Brookins, Gloversville, N. Y. Dr. and Mrs. Quarles are making their home in America, Ala.

The American College of Surgeons

Will hold its annual Clinical Congress at the Bellevue Stratford Hotel, Philadelphia, October 16-20.

The following are other dates of meetings scheduled to be held by the College during 1939:

March 15-17—Lord Baltimore Hotel, Baltimore. Participating States: Maryland, Virginia, West Virginia, District of Columbia, New Jersey, Delaware, Pennsylvania, North Carolina, and South Carolina.

March 22-24—Claypool Hotel, Indianapolis.

March 29-31—Fort Garry Hotel, Winnipeg.

American Public Health Association.

The annual meeting of this Association will be held in Pittsburgh, October 17-20, with headquarters at the William Penn Hotel. Dr. Reginald M. Atwater, New York, is executive secretary of the Association, and Dr. I. Hope Alexander, Director of Health of Pittsburgh, has been named as chairman of the local committee.

Van Meter Prize Award.

The American Association for the Study of Goiter again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held in Cincinnati, Ohio, May 22-24, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. W. Blair Mosser, Kane, Pennsylvania, not later than April 15, 1939. The Committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays.

Dr. James Q. Gant,

Medical College of Virginia, class of '35, is now with the U. S. Public Health Service and is located at the Glynn County Health Department, Brunswick, Ga., in connection with syphilis control work.

Virginians Elected to Membership in American College of Physicians.

At a meeting of the Board of Regents of the College, December 18, Dr. James N. Williams of Richmond was elected to fellowship, and Drs. William R. Jordan and W. L. Nalls, both of Richmond, were elected to associateship.

Dr. Reid White, Jr.,

Lexington, was in January elected full-time medical director for Washington and Lee University, and is expected to take up his new duties September 1. He has for several years been University physician.

The American Association for the Study of Goiter

Will hold its next annual meeting in Cincinnati, Ohio, May 22-24. The program will consist of scientific papers dealing with goiter and other diseases of the thyroid gland, dry clinics conducted by guests, and operative clinics in the various hospitals.

Dr. F. B. Dorsey, Jr., Keokuk, Iowa, is President of this Association and Dr. W. Blair Mosser, Kane, Pa., corresponding secretary.

Dr. R. A. Morison,

Of the George Ben Johnston Hospital in Abingdon, gave a lecture at the meeting of the Virginia Alpha Chapter of Alpha Epsilon Delta, national honorary pre-medical fraternity, at Emory and Henry College on January 27. His subject was "Modern Methods of Diagnosis".

The Samuel D. Gross Prize.

The Philadelphia Academy of Surgery announces that essays for the Samuel D. Gross Prize of $1,-

500.00, will be received until January 1, 1940. This prize is awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice founded upon original investigations, the candidates for the prize to be American citizens.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer. They must be written by a single author in the English language and should be sent to the Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 South 22nd Street, Philadelphia, Pa.

The Virginia Tuberculosis Association

Is to hold its annual meeting at Hotel Roanoke, Roanoke, on March 31, the sessions starting at 10:00 a. m. The guest speaker is to be Dr. William Atmar Smith, president of the Southern Tuberculosis Conference. Programs may be obtained from the Virginia Tuberculosis Association, Atlantic Life Building, Richmond. A cordial invitation is extended all interested to attend.

Dr. M. T. Rosser,

Hillsville, has recently been commissioned as a Lieutenant-Commander, MC-V(S) U. S. N. R.

Tri-State Medical Association of the Carolinas and Virginia.

At the annual meeting of this Association, held in Charleston, S. C., February 20-21, Dr. A. E. Baker of Charleston succeeded to the Presidency, and Dr. C. J. Andrews, Norfolk, was named President-elect. Other officers are: Dr. J. S. Horsley, Richmond, Dr. H. S. Clark, Asheville, N. C., and Dr. W. A. Wallace, Chester, S. C., vice-presidents; and Dr. J. M. Northington, Charlotte, N. C., re-elected secretary-treasurer. The 1940 meeting will be held in Richmond.

Dr. Mack I. Shanholtz,

Recently health officer with the Health Unit at Bristol, Va., has moved to Wewoka, Oklahoma, where he has accepted a position as director of The Commonwealth Fund Health Unit located in Seminole County. Dr. Shanholtz is an alumnus of University of Virginia, Department of Medicine, class of '34.

Dr. Ralph J. Sykes,

Class of '34, Medical College of Virginia, who has served for sometime as health officer of Surry County, North Carolina, has been appointed health officer for Halifax County, that State, and enters upon his new duties on March 1.

American Board of Obstetrics and Gynecology.

Application for admission to the Group A, May, 1939, Board examinations must be on file not later than March 15. The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the Board in St. Louis, Mo., on May 15 and 16, immediately prior to the annual meeting of the American Medical Association. Candidates for re-examination in Part II (Groups A and B) must request such by writing the Secretary's office before April 1.

Application blanks and information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, (6) Pa.

The Neuropsychiatric Society of Virginia,

At a meeting at Western State Hospital, Staunton, in February, elected as president, Dr. Hugh C. Henry of Richmond, director of State hospitals. He succeeds Dr. Frank H. Redwood of Norfolk, whose term of office expired. Dr. Thomas N. Spessard of Norfolk was elected vice-president and Dr. Edward H. Williams of Richmond secretary-treasurer.

The American Congress on Obstetrics and Gynecology

Is preparing an extensive program for its meeting in Cleveland, Ohio, September 11 to 15, inclusive. The morning sessions for the five days will consist of special program for each organization group and their sub-groups. Following this, time will be given to round tables. The afternoon hours will be devoted to joint sessions of general interest to all members, and the evening sessions will include speakers of national prominence. Time will be given for visiting the scientific and technical exhibits following both the morning and afternoon sessions. Dr. M. Pierce Rucker of Richmond is regional chairman of Virginia, West Virginia and Kentucky.

Any special information desired may be obtained from the Central Office of the American Committee on Maternal Welfare, 650 Rush Street, Chicago, Ill.

International College of Surgeons.

The officers of this Association announce that the International College, in connection with the United States Chapter of that body, will hold its Assembly in New York City at the Hotel Roosevelt on May 22, 23 and 24, 1939.

Dr. Edward Frankel, Jr., of 217 East 17th St., New York City has been appointed by the International officers as General Chairman of this Assembly. Any one interested in space for scientific exhibits will please communicate with him.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

BARSKY, A. J. Plastic surgery.
BEST & TAYLOR. The living body.
CONKLIN, E. Doctors, I salute!
COWAN, A. Refraction of the eye.
DICK, G. F. Scarlet fever.
HALSEY, G. D. How to be a leader.
HEGNER, R. Big fleas have little fleas.
JUST, E. E. The biology of the cell surface.
KOLER, J. A. Approved laboratory technic. 2nd ed.

Doctors Officers of Alumni Association.

Dr. Clyde F. Ross of Richmond was elected president of the local chapter of the Roanoke College Alumni Association at its meeting on February 18, and Dr. Douglas G. Chapman was re-elected secretary-treasurer.

Dr. Hugh O. Staley,

Class of '32, University of Virginia, Department of Medicine, recently at St. Charles, is now located at Omer, Michigan.

Medical Research Work Done.

Physician having access to a complete medical library offers his services for locating references or for medical research of any kind. Fees reasonable. Address No. 38 care the VIRGINIA MEDICAL MONTHLY. (*Adv.*)

Home and School for "Exception" Children.

The Thompson Homestead School, located at Free Union near Charlottesville, is especially adapted for the shy, nervous, retarded or unsocial child. Enrollment is limited. Detailed information may be secured from Mrs. J. Bascom Thompson, principal, Free Union, Va. (*Adv.*)

Physician Wanted.

A physician is wanted for Pamplin, Va., and surrounding community. For information, write Mrs. R. H. Whitehead, R. F. D. No. 2, Pamplin, Va.

For Sale—

Allison Examining and Treatment Office Table. Looks like new. Price reasonable. Write "Allison", care the MONTHLY. (*Adv.*)

For Sale—

Eye, Ear, Nose and Throat Treatment Cabinet. In first class condition, attractively priced. For information, write "Cabinet", care this JOURNAL. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

Obituary Record

Dr. James Carroll Flippin,

Dean of the Medical School of the University of Virginia, and Professor of Clinical Medicine, died February 16, of heart trouble. He was a native of Lunenburg County and sixty-one years of age. Dr. Flippin received his medical degree from the University of Virginia in 1901, following which he joined the staff as instructor in medical biology. He became Dean of the Medical School in 1924. Under his direction, the medical department and the hospital were expanded at an estimated cost of more than $2,000,000.

Dr. Flippin joined the Medical Society of Virginia in 1907. Since that time he had taken an active part in the Society, serving on numerous committees, and was President for the year 1932-33. An editorial at that time, in the *Monthly*, stated: "His elevation to the presidency affords increased opportunity for his talents in the field of medical education and administration. Possessing, in rare balance, the traits of the successful teacher, the gifted clinician and the experienced administrator, he is eminently qualified to carry forward the program of his distinguished predecessors toward fulfilling the Society's dedication to service for the State and the profession." Dr. Flippin represented the State So-

ciety in the House of Delegates of the American Medical Association and also served on the Council on Scientific Assembly of this Association.

Dr. Flippin was a member of Phi Beta Kappa, Alpha Omega Alpha, Kappa Sigma, Nu Sigma Nu, and of the Farmington and Colonnade Clubs. He was the author of many papers on clinical medicine published in scientific journals.

His wife, two daughters and a son, Dr. Harrison Fitzgerald Flippin, of Philadelphia, survive him.

Dr. Joseph Thompson McKinney,

Chief radiologist at the Lewis-Gale Hospital, Roanoke, died February 3, after an illness of two months. He was a native of North Carolina and forty-nine years of age. Dr. McKinney received his degree in medicine from the Medical College of Virginia in 1912, following which he practiced for a time in Richmond. During the World War he served as a captain in the Stuart McGuire Unit, and upon his return located in Roanoke. He was a charter member and a past president of the Roanoke Kiwanis Club, a Mason and a Shriner, and also a member of the Medical Society of Virginia, in which he recently served as a councilor. His wife and two children survive him.

Dr. William Edgar Fahrney,

Broadway, died February 16. He was sixty-five years of age and graduated in medicine from the University of Maryland in 1897. Dr. Fahrney specialized in the eye, ear, nose and throat and had an extensive practice in Rockingham County. He was a member of the Medical Society of Virginia for a number of years. His wife survives him.

Resolutions on Death of Dr. Neff.

The death of Dr. John Henry Neff, Professor of Urology and Proctology, has plunged the University of Virginia into profound sorrow. His personality and influence have been for many years among the most potent forces within the University; students and colleagues alike have sought his wisdom and judgment in moments of difficulty, his support and encouragement for all good causes. His skill and professional attainments have developed in the University of Virginia a nationally recognized center not only for sound urological work but also for the training of urologists. Countless patients have received physical healing from his hands, spiritual support from the honesty and courage of his character, and cheer from his presence. By all former students, his clear and forthright teaching is looked back upon as the outstanding influence of the medicl school and hospital years. In consideration of these facts, be it

RESOLVED, that the faculty of the School of Medicine of the University of Virginia hereby express, arising from the death of Dr. Neff, a sense of bitter loss of the surgeon, the teacher, the quiet influence for justice and right, the friend and, above all, the man; and be it further

RESOLVED, that a copy of these resolutions be published in the VIRGINIA MEDICAL MONTHLY.

By the Committee:

VINCENT W. ARCHER,
JAMES R. CASH,
EDWIN P. LEHMAN, *Chairman*

In Memorian--Dr. A. A. Sizer.

Dr. A. A. Sizer, whose death ensued from a cerebral hemorrhage on January 10, was sixty-eight years old, was born at King William Court House, and graduated from the Medical College of Virginia in 1899.

He practiced medicine for forty years; a great part of this period of practice was spent at the Alberene Soapstone Quarry Corporation, Schuyler, Va.

Dr. Sizer was a member of the American Medical Association, the Medical Society of Virginia and the Nelson County Medical Society. In 1918 he volunteered for service in the World War.

WHEREAS, by the death of Doctor Sizer, the Nelson County Medical Society has lost a valued and able member, the Society desires to express its deep appreciation of his professional abilities, high type of manhood and gentlemanly conduct.

The people of Schuyler have lost an able and sympathetic medical adviser, who, as a friend, entered their homes in the spirit of love and devotion to duty.

The beauty of such a life, we might well strive to emulate.

F. M. HORSLEY,
A. MICKLEM,
J. F. THAXTON.
Committee.

Dr. Virgil Eubank Stiff,

Harmony Village, died February 11, following complications resulting from a recent mastoid operation. He was sixty-two years of age and a graduate of the Medical College of Virginia, class of 1906. His wife and two daughters survive him.

Dr. Oliver S. Burns,

Well known physician of Lebanon, died on October 26, at the age of seventy-three years. He was a graduate of the Kentucky School of Medicine of Louisville in 1885, and was a member of the Russell County Medical Society.

Dr. John Bruce James

Died in a Baltimore Hospital, February 6, following a long illness. He was a native of Danville and thirty-three years of age. Dr. James graduated from the Medical College of Virginia in 1931.

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MARSHALL P. GORDON, JR., M. D.	Urology
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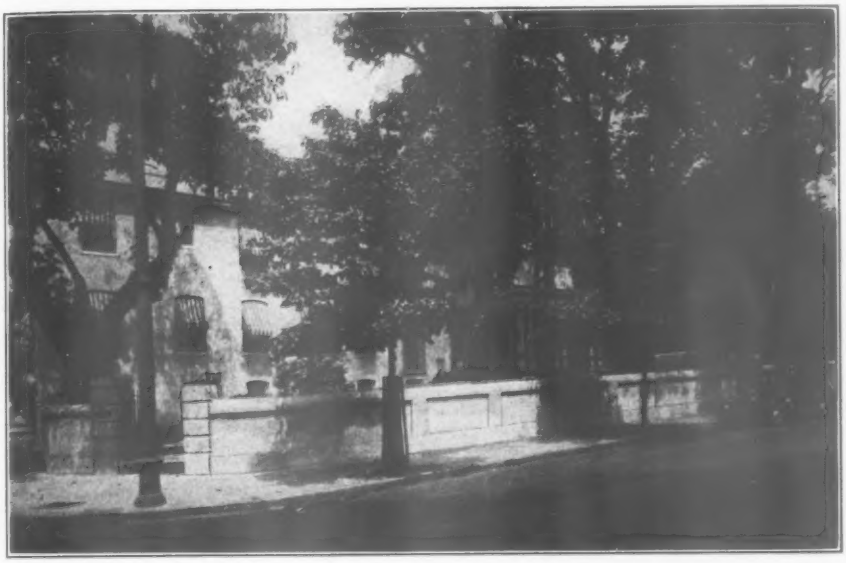

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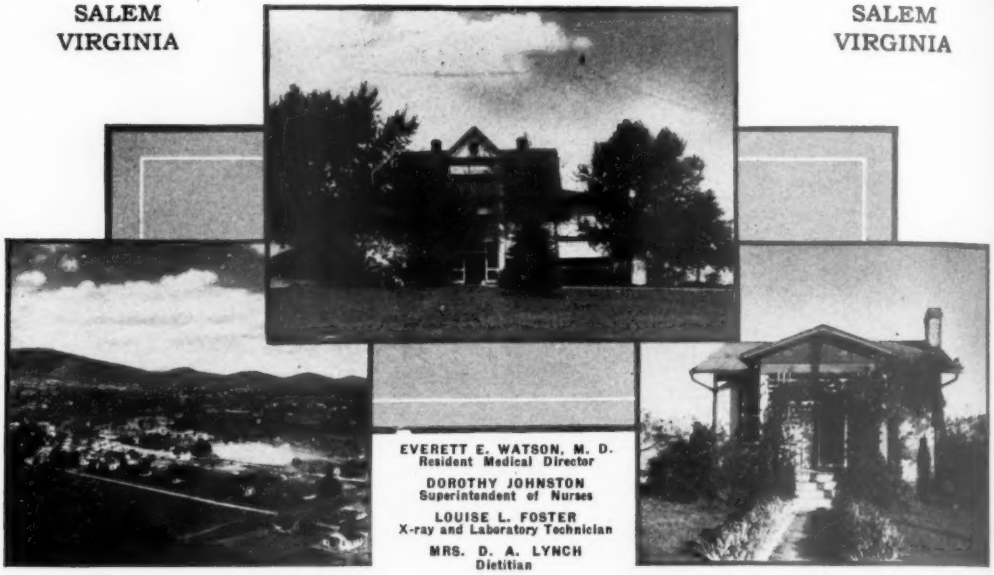

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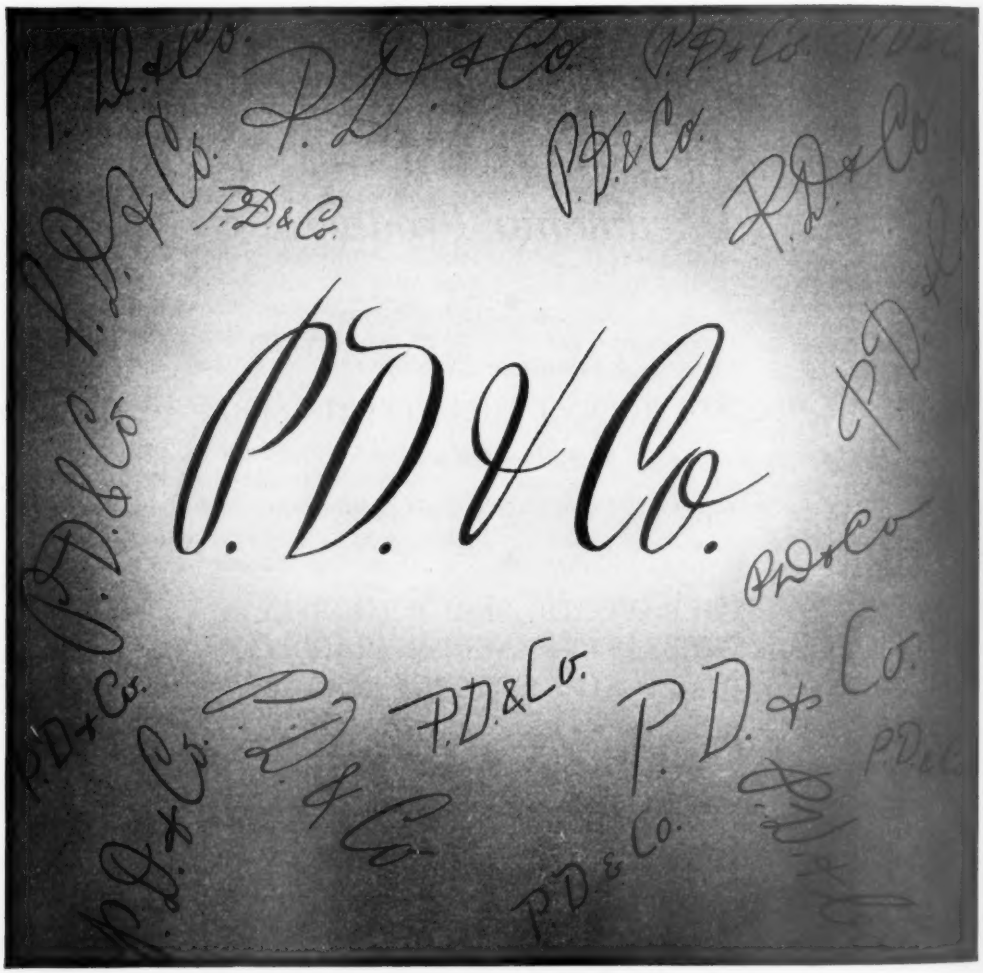

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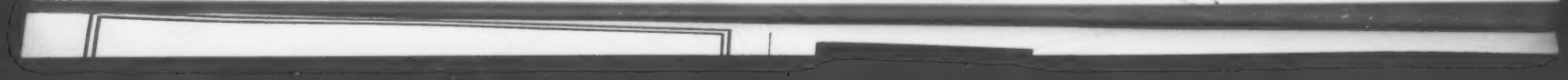

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